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The Luce Hall cupola during one of the frequent snowstorms (this one in December) of the winter of 2002–2003. Photograph by Jo-Ann Parks, reproduced by permission.

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FROM THE EDITORS

As the Navy, the Naval War College in particular, continues to work toward the articulation of a new maritime strategy, it is well to be reminded that such a strategy will encompass more than the Navy itself. Admiral Michael Mullen, Chief of Naval Operations, has introduced the concept of the "thousand-ship navy" in order to underline the vital role of international cooperation in the maritime domain to meet the threats of today and tomorrow. But critical to this vision as well is the U.S. Coast Guard—a force larger and more capable than many of the world's navies, and one whose multiple and in some cases unique missions have only gained in relevance and importance in the current strategic environment. Vice Admiral Vivien Crea, Vice Commandant of the Coast Guard, offers an authoritative and timely account of the role that service is currently playing as a component of our National Fleet in support of homeland security, the safeguarding of order throughout the maritime domain, and international cooperation in the global war on terror.

Contributing further to the current debate on national maritime strategy is Roger W. Barnett, professor emeritus at the Naval War College, who offers a useful reminder of the importance of ensuring congruity between any new maritime strategy and the traditions or "culture" of the Navy and the sea services generally. Professor Craig Allen, current holder of the Charles H. Stockton Chair in International Law at the Naval War College, extends and deepens several recent discussions in this journal of the Proliferation Security Initiative, one of the most innovative and successful recent examples of U.S. Navy–led international maritime cooperation. This is an area, it may be added, in which the Center for Naval Warfare Studies has been centrally involved over the last several years through sponsorship of an intensive wargaming program for civilian agency officials as well as naval officers from a variety of the participating countries.

The current issue of the *Review* also features more contributions by associates of the China Maritime Studies Institute (CMSI), a new research center within the Center for Naval Warfare Studies specializing in analysis of Chinese-language military publications. Andrew S. Erickson and Lyle J. Goldstein (CMSI's first director) provide a detailed survey of the Chinese nuclear submarine program as discussed in this literature over the last several years. Lieutenant Michael C.

Grubb, USN, a submarine officer with a background in naval architecture and marine engineering, provides a unique analysis of the global merchant shipping industry and the role it might play in a hypothetical Chinese blockade of Taiwan. The *Review* is pleased to open its pages to Naval War College students like Lieutenant Grubb, and we hope to see more such work in the future.

Finally, special acknowledgement should also be made of the timely and careful analysis of key organizational issues in the area of military medicine by three current or retired senior officers in the Navy's Medical Corps, Captain Arthur M. Smith, Captain David A. Lane, and Vice Admiral James A. Zimble. Their advocacy of "purple medicine" is certain to be an important contribution in an ongoing debate on this matter within the Department of Defense.

1990S MARITIME STRATEGY: NEWPORT PAPER 27

U.S. Naval Strategy in the 1990s: Selected Documents, edited by John B. Hattendorf, the Naval War College's Ernest J. King Professor of Maritime History, is now available on the Press website and in print (directly distributed to series subscribers). The volume collects documents reflecting the evolution of official thinking within the U.S. Navy and Marine Corps during the post–Cold War era concerning the fundamental missions and strategy of the sea services. It forms part of a larger project bringing greater transparency to a dimension of our naval history that is now seen as having urgent interest. Professor Hattendorf initiated the undertaking with his authoritative study in Newport Paper 19 (2004) of the Maritime Strategy of the 1980s. In Newport Paper 27, covering the 1990s, he has assembled for the first time in a single publication all the major naval strategy and policy statements of that decade.

TSUNAMI ASSISTANCE: NEWPORT PAPER 28

Newport Paper 28, *Waves of Hope: The U.S. Navy's Response to the Tsunami in Northern Indonesia*—the first comprehensive history and analysis of Operation UNIFIED ASSISTANCE in late 2004 and early 2005—is available online and in print. Dr. Bruce Elleman, a research professor in the Department of Maritime History at the Naval War College, has produced a valuable and unique study, drawing upon a variety of internal Navy documents, oral histories, and interviews with senior officers, including Admiral Vern Clark. It will prove of immediate benefit to planners in the naval and joint world of the U.S. military, as well as to those of other nations potentially interested in exploiting its lessons to improve their own capabilities in the frequently neglected yet vital—indeed, life-saving—military mission of humanitarian assistance.

LEADERSHIP AND DECISION

A reader has kindly drawn our attention to a quotation attribution in Mackubin Owens's "Rumsfeld, the Generals, and the State of U.S. Civil-Military Relations," in our Autumn 2006 issue. Professor Owens has followed up and tells us: "In my piece, I quoted General Tony Zinni as saying that Sec. Rumsfeld was 'incompetent, strategically, operationally, and tactically.' In fact, it was Army Major General Paul Eaton who made the comment. I apologize for the error."

Rear Admiral Jacob L. Shuford was commissioned in 1974 from the Naval Reserve Officer Training Corps program at the University of South Carolina. His initial assignment was to USS Blakely *(FF 1072). In 1979, following a tour as Operations and Plans Officer for Commander, Naval Forces Korea, he was selected as an Olmsted Scholar and studied two years in France at the Paris Institute of Political Science. He also holds master's degrees in public administration (finance) from Harvard and in national security studies and strategy from the Naval War College, where he graduated with highest distinction.*

After completing department head tours in USS Deyo *(DD 989) and in USS* Mahan *(DDG 42), he commanded USS* Aries *(PHM 5). His first tour in Washington included assignments to the staff of the Chief of Naval Operations and to the Office of the Secretary of the Navy, as speechwriter, special assistant, and personal aide to the Secretary.*

Rear Admiral Shuford returned to sea in 1992 to command USS Rodney M. Davis *(FFG 60). He assumed command of USS* Gettysburg *(CG 64) in January 1998, deploying ten months later to Fifth and Sixth Fleet operating areas as Air Warfare Commander (AWC) for the USS* Enterprise *Strike Group. The ship was awarded the Battle Efficiency "E" for Cruiser Destroyer Group 12.*

Returning to the Pentagon and the Navy Staff, he directed the Surface Combatant Force Level Study. Following this task, he was assigned to the Plans and Policy Division as chief of staff of the Navy's Roles and Missions Organization. He finished his most recent Pentagon tour as a division chief in J8—the Force Structure, Resources and Assessments Directorate of the Joint Staff—primarily in the theater air and missile defense mission area. His most recent Washington assignment was to the Office of Legislative Affairs as Director of Senate Liaison.

In October 2001 he assumed duties as Assistant Commander, Navy Personnel Command for Distribution. Rear Admiral Shuford assumed command of the Abraham Lincoln *Carrier Strike Group in August 2003. He became the fifty-first President of the Naval War College on 12 August 2004.*

PRESIDENT'S FORUM

Toward a Coherent Education Strategy in the Navy

Everything in war is very simple, but the simplest thing is difficult. The difficulties accumulate and end by producing a kind of friction. . . . This tremendous friction . . . is everywhere in contact with chance, and brings about effects that cannot be measured. . . . Moreover, every war is rich in unique episodes.

CARL VON CLAUSEWITZ, *On War*

THERE HAVE BEEN A NUMBER of attempts over the past decade to create a coherent and comprehensive education policy for the Navy and a strategy to implement it. Efforts over the past year have been very encouraging, and it appears that we may well be moving toward realizing this objective. In his Guidance for 2007, the Chief of Naval Operations (CNO) has advanced the primary objective of completing and *executing* a Navy Education Strategy that emphasizes "critical thinking, leadership, cultural awareness, jointness, innovation, and adaptability." One certain thing that this strategy must do is to ensure an inventory of leaders who are capable of burning through Clausewitz's "fog and friction" and accomplishing those things that are "simple yet profoundly difficult." There is a scale of difficulty across the constituent continuum of war and diplomacy.

Tactics are simple, operational command and control more difficult, and a grasp of the strategic more difficult still. It is in the realm of strategy, Clausewitz contends in his chapter on military genius, that the greatest demand war places on its practitioners is to be found—"the region dominated by the powers of intellect." This realm is so challenging and vexing because it deals with the limits of knowledge, the unknown, and the unknowable. While we cannot know specifics about the future, we can know the past and how it is likely to shape the future. And certainly we must know our profession, but as importantly at the strategic level, we must know how effectively to convey critical perspectives of our profession to those outside of it: a strategic leader must be able to think about a problem in terms beyond his or her own personal and limited training and experience. Education gives a leader the tools to do that.

Our education institutions, from the Naval Academy to the Naval Postgraduate School, Naval War College, and Senior Enlisted Academy, each individually provides the most sought-after learning programs among the services. They produce a small cadre of enlisted and officer warriors capable of leading at the operational and strategic levels. But the Navy's senior leadership recognizes that it needs more leaders who bring more fully developed competencies to these complex tasks. This demand occurs at the same time the Navy is tailoring its Total Force and putting fewer people on each ship, in each squadron, and in each headquarters staff. All this—in an era where image, information, and influence move with instantaneity and without regard to borders—places an absolute premium on a *comprehensively* educated force. It is an era where any tactical action can have strategic effects. Any soldier, sailor, airman, or Marine could well find himself or herself at a strategic inflection point, where the next word or motion, thought, or action could either significantly advance—or undermine—a national objective.

Our nation's military leadership has recognized that the current force and how we deploy and employ it must be transformed to respond to this new security environment—and we have worked on this hard for most of the past decade. We have moved away from the models of Sir Frederick Lanchester—that is, of attrition warfare, where large aggregations of forces moved in concert, where training and rigid doctrinal response were absolutely paramount to success, and where a few broadly educated leaders at the very top, connected to a hierarchical information, command, and control system, were sufficient to generate and, very deliberately, move mass. Reliance on these approaches is no longer adequate. Increasingly military force will be employed in integrated strategic concert with national and international diplomatic, informational, and economic levers to achieve specific political *effects*. It will be strategically dispersed, more effectively engaged, and increasingly reliant upon sustained relationships, enabled by a more comprehensive understanding of partners as well as competitors. Command and control of these forces will flatten, and responsibilities and authorities will devolve accordingly, placing a premium on individual awareness, initiative, creative thinking, and good judgment. This force, I contend, will be characterized by strategic-mindedness—and must be *very well educated.* This must be recognized as a key precept to our strategy.

An education strategy must be accompanied by strategic governance. As long as the key education institutions and numerous programs, from accessions through executive levels, remain independent and plan, program, and execute in relative isolation, the Navy's education investment will not be fully leveraged against tomorrow's opportunities and challenges. The good news is that most of the pieces are in place. The Naval War College, the Naval Postgraduate School, the Naval Service Training Command, the Senior Enlisted Academy, and the Naval

Academy have begun collaborating more routinely to produce the multiple elements required for success. Previous "President's Forums" have detailed the management mechanisms and policy objectives constituting the Professional Military Education (PME) Continuum, the policies defining the Path to Jointness, the Navy's initiative to establish a coherent Leadership Continuum reflected by its development of the Joint Force Maritime Component Commander (JFMCC) courses, the College's complete restructuring of the Intermediate and Senior War College courses, and its aggressive investment to make its educational products easily accessible to the waterfront and around the world through a distance-learning model that sets a standard for the nation. These initiatives are enabled by a broad and complex set of activities. They are different from complementary training activities in terms of concept, processes, execution, and outcomes. The system of governance our strategy demands must take this fundamental fact into account.

In terms of ultimate outcomes, I believe our educational strategy should directly contribute to a Navy that:

- Possesses sufficient intellectual capacity to meet unforeseen challenges in an increasingly complex and uncertain global environment, and sufficient to overcome any challenge to our nation's maritime security.
- Attracts and retains men and women imbued with a commitment to selfless service and capable of becoming critical thinkers and experts in the profession of arms.
- Values and develops people who are of strong moral character and integrity, possess an absolute sense of personal honor, exhibit physical and moral courage, and act ethically as a matter of instinct.
- Is inherently joint.
- Manages education as a strategic investment in its future.
- Is "branded" as a force of broadly educated professionals doing intellectually challenging work.
- Is innovative and bold but able to calculate risk versus reward.
- Is able to sustain and advance our technological advantage.

Furthermore, this strategy should also be guided by several key principles. First, education is used to develop leaders to their full potential, with the professional qualifications and competencies needed in the maritime and joint environments. In this regard, a key corporate objective should be to develop the largest possible body of fully qualified and inherently joint leaders—officers,

enlisted, and civilians alike—suitable for service, joint, multinational, and interagency command and staff positions.

Leadership development—expanded to include confidence to operate in chaotic environments and mastery of dynamic, networked political and command-and-control systems—is a unifying objective of professional military education.

Professional military education is continuous across a career, and the Navy should systematically identify, at every level of this continuum, those individuals who are most likely to benefit from specific additional educational investments as they progress toward leadership at the highest levels of responsibility in Navy, joint, multinational, and interagency assignments.

Diversity of thought and perspective is critical to an effective Navy. It is a product of multiple educational and experiential pathways and of engagement in extended interaction with peers in academic, business, and government circles worldwide.

Service education is the foundation of joint military education. While Naval Professional Military Education is the principal armature of career development, the Navy's, Defense Department's, and American educational system's undergraduate, graduate, certificate, and nondegree programs should also continue to be critical components of a broadly educated force.

Joint education is the critical enabler to affect joint warfighting capability: "The future of national and international security lies in interoperability and cooperation among the Services, the interagency, international partners and non-governmental organizations. . . . But we are only as good as the contribution we make to the overall effort" (*CNO Guidance,* 2006). Education of leaders must be accomplished within this context, developing concurrently both service and joint competencies, throughout the learning continuum.

Language, regional expertise, and cultural awareness are required for the global mission that falls particularly to our sailors. The Navy should develop a Total Force that possesses foundational and graduated regional expertise and cultural awareness, viewed as "critical warfighting skills," complemented by specialists who possess foreign language expertise and profound understanding of specific regimes and cultures.

Technological advantage must be at the core of our education strategy. An enduring strength of the Navy has been its ability to develop and exploit new technologies. Sustaining and extending this relative advantage demand continued focus on technical education, balanced by the equal demands for breadth and perspectives yielded by liberal-arts curricula. Achieving this balance is a key element of diversity.

A Continuum of Learning is necessary to develop fully the potential of the Total Force, and mechanisms must be put in place to ensure that learning occurs throughout a career, as leaders develop over time, acquiring and performing

progressively more complex and demanding skills and responsibilities. Five distinct levels of education constitute the learning continuum: introductory, primary, intermediate, senior, and executive. Multiple learning pathways must be provided and individual experience or self-development credited for formal education whenever equivalent outcomes have been achieved and demonstrated.

Active learning is more effective than passive learning. To this end, the Navy should employ the full range of educational opportunities, from the traditional classroom to distance learning via either a virtual group or individual, self-paced, or computer-based education. Educational outcomes should be assessed on the basis of what has been learned, instead of simply read or remembered.

Self-development is the critical enabler in producing a partnership between the Navy and the individual sailor in education. The Navy must emphasize the necessity of an individual to prepare for greater responsibilities and authorities through self-directed activity and study. The framework for success in self-development is built on the commanding officer's and command master chief's leadership and involvement, specifically the commander's creation of an environment where self-development is both prized and expected.

Flagship educational institutions need to be the engine that ensures the core competencies are taught, learned, and assessed. The importance of institutional integrity of the Navy's flagship institutions—the Naval Academy, the Naval Postgraduate School, and the Naval War College—must be recognized, preserved, and enhanced.

Finally, the term "military genius" permeates the entirety of Clausewitz's seminal treatise *On War*. He carefully noted that it is in fact the product of rich experience and applicable training. But he also stated, "The knowledge needed by a senior commander is distinguished by the fact that it can only be attained by a special talent, through the medium of reflection, study and thought: an intellectual instinct which extracts the essence from the phenomena of life, as a bee sucks honey from a flower." A Navy education strategy and governance that not only acknowledges this but embraces it and makes it the foundation of an inventory of leaders for whom operational and strategic leadership is a core competency is an approach that will deliver joint warfighting capabilities across the spectrum, from the simple to the difficult, in advance of the uncertainties of the future.

J. L. SHUFORD
Rear Admiral, U.S. Navy
President, Naval War College

Vice Admiral Vivien S. Crea assumed the duties of Vice Commandant of the U.S. Coast Guard in June 2006. Prior to this assignment she served as Commander, Atlantic Area, and concurrently as Commander, Coast Guard Defense Force East. Previous assignments include Commander, First Coast Guard District; Chief Information Officer and Director of Research and Development for the Coast Guard; Chief, Office of Programs (budget development and advocacy); Executive Assistant to the Commandant of the Coast Guard; and military aide to President Ronald Reagan. A Coast Guard aviator, Vice Admiral Crea is a Massachusetts Institute of Technology Sloan Fellow and holds master's degrees from MIT and Central Michigan University and a bachelor's degree from the University of Texas.

THE U.S. COAST GUARD

A Flexible Force for National Security

Vice Admiral Vivien Crea, U.S. Coast Guard

The U.S. Coast Guard is a flexible and effective force for national security in an era when the demands for adaptive and agile capabilities have increased dramatically. The growing awareness of the need for heightened international maritime security, the challenges of the Global War on Terrorism, the growth and reshaping of maritime trade, other security trends and dynamics, and expanded humanitarian-response needs have all but ensured the emergence of the Coast Guard—the smallest of the five U.S. armed forces—as a vital force for America's twenty-first-century security and safety, as well as for safeguarding good order throughout the maritime domain.

The Coast Guard has always played key roles in the protection of the U.S. homeland and has been entrusted with five fundamental missions: Maritime Security, National Defense, Maritime Safety, Protection of Natural Resources, and Maritime Mobility. While all are inextricably linked to the good order of the U.S. and global maritime domains, the Maritime Security and National Defense missions in particular represent our service's direct contribution to the National Strategy for Maritime Security approved by President Bush in 2005. Our maritime security goals include reducing America's vulnerability to terrorism by preventing waterborne terrorist attacks; securing maritime borders by halting the flow of illegal aliens and contraband; preventing violations of our exclusive economic zone; and suppressing maritime violations of federal law. The Coast Guard's National Defense goals include defending the nation and enhancing regional stability in support of the National Security Strategy and National Military Strategy through our unique, relevant, and nonredundant capabilities and authorities.

In partnership with the U.S. Navy, we are committed to the National Fleet initiative to foster seamless compatibility across America's maritime and naval defense systems while avoiding mission requirement gaps as well as redundancies. Increasingly, our National Fleet contributions link us to the combatant commanders, as well as other U.S. joint and coalition forces.

Central to our ongoing and future contributions to the National Fleet is the DEEPWATER acquisition program, which is modernizing and equipping the Coast Guard for the threats and hazards of the future.

SHIFTING DEMANDS

Three core demands drive the requirement to reshape the Coast Guard and to augment our ability to be a central force for flexible response to provide for national security.

The first is associated with the post-9/11 environment. The protection of the homeland in response to asymmetric attacks on U.S. territory has become a core strategic challenge. To respond to this challenge, the Department of Homeland Security (DHS) was created, a new unified Northern Command (NORTHCOM) was created, and the Coast Guard was shifted from the Department of Transportation to the DHS. The service has become a key catalyst in providing capabilities to accomplish DHS and NORTHCOM missions.

The 9/11 attacks caused a tremendous shift in our missions and tasks balance. Resources committed to port security spiked from 2 percent of the service total on 10 September to 60 percent within a matter of days, and there they remained for months. Since then, homeland security operations have leveled off to a sustainable 28 percent, but that change in emphasis is permanent—the "new normalcy," as former Coast Guard Commandant Admiral James M. Loy characterized it. The law that created the Department of Homeland Security and transferred the Coast Guard there in 2003 directed the service to maintain all former missions while taking on the formidable task of securing 361 U.S. ports and more than ninety-five thousand miles of coastline.

The need to protect the homeland in the context of the "long war" against terrorism has been a key force for change in the Coast Guard. Although our initial response to this new terrorism threat temporarily drained resources from other mission areas, we have worked to restore the maritime safety and security mission balance. Congress and the administration have provided critical funding support. New and more capable assets have been added, and all of our resources present a multimission capability that can instantly and flexibly surge from search and rescue, to restoration of our ports and waterways, to response to avert a threat to our homeland security. New intelligence, surveillance, and reconnaissance (ISR) and command-and-control (C2) capabilities have enhanced our

ability to identify potential threats and to manage assets to respond to those threats.

Collaboration with federal, state, and local authorities has greatly expanded to improve security in our ports and coastal waterways. Strategic engagement with the Navy and NORTHCOM has been intensified. We are carefully designing and building a maritime regime that through regulation, international engagement, and collaboration with private industry and federal, state, and local partners seeks to push our borders off shore, to identify and mitigate threats before they reach our nation's ports and waterways. We also have refined processes, improved maritime domain awareness and information sharing, and developed stronger partnerships at federal, state, and local agency levels and also with industry and private organizations at home and overseas.

The second demand has been to recast the Coast Guard's role in trade security. Shipping is at the heart of global trade. Most international trade—about 90 percent of the total by volume—is carried by sea. About half of the world's trade by value and 90 percent of the general cargo is now transported in containers, a dramatic shift in the nature of the global supply chain fueling hyper-globalization. Supply chains that feed components and finished products to users on a just-in-time and just-enough basis have become critical to streamlining efficiencies in modern manufacturing and service industries. Seaborne trade and its land connections in the global supply chain have become increasingly efficient, large in scale, and open to exploitation.

The confluence of the increase in the volume of trade, the shift toward containerization, the shift in manufacturing and production models, and the rise of megaports has created a new and complex maritime security environment. The long-standing threat of piracy and also of terrorists with potential access to weapons of mass destruction (WMD) and waterborne improvised explosive devices (WBIEDs), perhaps funded by illicit activities, elevates the importance of maritime security significantly.

The dramatic upsurge in global maritime trade is creating a new strategic environment within which the Coast Guard is leading the efforts to shape a more effective and enhanced maritime security regime or system. The creation of a maritime security regime is an enterprise that must blend the activities of and achieve a balance between the commercial, civilian, law enforcement, and quasi-military domains. The challenges of the twenty-first century uniquely position the Coast Guard as the nation's choice maritime security force due to our multimission, maritime, and military capabilities developed in more than 216 years of service, and to our unique synergies as a military service, law enforcement and regulatory authority, and member of the national intelligence community.

The third demand is the growing significance of the Coast Guard in international engagement. The Global War on Terrorism and maritime trade and security demands have placed the service in the vortex of a new international dynamic. Fighting the Global War on Terrorism means that our overseas engagement in places like Iraq and the Middle East has been enhanced, as well as our role with allies in the Pacific, Europe, the Caribbean, and Africa. Our unique skill sets of working with the commercial sector, our law-enforcement authorities, the manner in which we serve as a model for overseas navies concerned with coastal defense, and our seamless transition to a military role with the Navy and other joint and international forces are of increasing significance.

For example, law-enforcement agencies in the northeastern United States and Canada are working more closely together to share terrorist-related intelligence and information. The idea of a regional approach to homeland security is one that is very important.

Moreover, our role in Iraq has been to provide capabilities that capitalize on our special competencies for operating in the littorals—particularly patrol boats and small craft designed to operate in riverine and brown-water regions. Working with the Navy, the Coast Guard offers extensive experience gained from boarding vessels to stop drug smugglers, illegal migrants, and other illicit activities, and our understanding of the littoral operational environment is second to none.

At the peak of Operation IRAQI FREEDOM (OIF) in 2003, the Coast Guard had 1,250 personnel deployed, including about five hundred reservists. We continue to operate six Island-class 110-foot patrol boats in the Arabian Gulf and also deploy two law-enforcement detachments (LEDETs) on board U.S. Navy and coalition ships. The patrol boats perform a variety of important missions, including offshore oil platform protection, maritime-interdiction and shipping escort missions, and port-security assets for deployed forces. We also continue to play a critical role in training Iraqi navy and marine forces to facilitate mission transition.

Another example of Coast Guard operations conducted in non-U.S. waters is to patrol and protect major trade chokepoints, through which much of the world's commerce passes. Many foreign navies and coast guards work in closer cooperation with the U.S. Coast Guard than with the U.S. Navy, which has the primary responsibility for naval force projection and sea-lane security. Since the 1990s, Coast Guard cutters have deployed with Navy battle, strike, and expeditionary groups in order to build relationships and train with smaller navies, as host nations are often more willing to allow a white-hulled cutter into port than a haze-gray U.S. warship—as evidenced by the visit of a Coast Guard high-endurance cutter and buoy tender to China in summer 2006, as well as

operations by medium-endurance cutters in the Gulf of Guinea and the Mediterranean in support of U.S. European Command.

Still another example was the Coast Guard's participation in CHOKEPOINT '04, a multinational exercise designed to test the ability of allied countries to share intelligence information, track, and take down a vessel suspected of carrying material used to make weapons of mass destruction. The U.S. exercise partners included Australia, Canada, Chile, Denmark, France, Germany, Italy, Japan, Norway, the Netherlands, Panama, Poland, Portugal, Singapore, Spain, Sweden, Turkey, and the United Kingdom. CHOKEPOINT '04 was part of the Proliferation Security Initiative announced by the president in May 2003, which stemmed from the National Strategy to Combat Weapons of Mass Destruction issued in December 2002.

Finally, building these relationships and providing training for partner nations' maritime security forces is an important international engagement role carried out by the Coast Guard International Training Division at Training Center Yorktown, Virginia. For example, we sent boarding officers to Brazil to help train its Federal Maritime Police force. The Brazilians were so pleased with the training that they have requested more advanced training from the division.

FLEXIBLE AND ADAPTABLE CAPABILITY

The Coast Guard is a flexible and adaptable force. We are always deployed and always active in safeguarding the maritime security of U.S. citizens and interests. As such, we are a unique military force. Other military services train and deploy or wait for surge requirements to emerge. For the Coast Guard, "24/7" is the reality of operational tempo and demands. "Deployment" is not a phase of the development of the force; it is an everyday activity.

In a sense, the Coast Guard is a "Rubik's Cube" in the "puzzle" of national security. It can combine and recombine to work with its various domestic and foreign partners to shape effective responses to twenty-first-century security demands.

Our evolving relationship with the U.S. Navy underscores the Coast Guard's recombination power. In March 2006, the Chief of Naval Operations, Admiral Michael G. Mullen, and then–Coast Guard Commandant Admiral Thomas H. Collins signed an updated and expanded Navy–Coast Guard National Fleet Policy. The National Fleet Policy calls for a fleet with three major qualities. First, the fleet will comprise ships, boats, aircraft, and shore command-and-control nodes that are affordable, adaptable, and interoperable and possess complementary capabilities while eliminating redundancy. Second, these forces will be designed with common command, control, and communications equipment and operational, weapon, and engineering systems, and they will

include coordinated operational planning, procurement, training, and logistics. Finally, the National Fleet will have the capabilities needed to support the full range of U.S. national security requirements, from overseas power projection to homeland defense and security. Admiral Thad W. Allen, who became Coast Guard commandant in May 2006, and Admiral Mullen underscored the services' joint commitment to the National Fleet concept in an article published in the August 2006 U.S. Naval Institute *Proceedings*.

The Coast Guard will contribute statutory authorities; multimission cutters, boats, and aircraft; and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems—augmented by law enforcement and environmental-response teams. This takes advantage of the whole array of Coast Guard mission capabilities for maritime security operations, counterterrorism and crisis response, and meeting the joint combatant commanders' theater plans for general-purpose warships.

One of our most successful examples of this Navy–Coast Guard partnership is the Joint Harbor Operations Center (JHOC). The JHOC is manned by both Coast Guard and Navy personnel, and it takes advantage of both services' strengths to identify and track all maritime traffic in and out of U.S. ports. The JHOC in Hampton Roads, Virginia, for example, has already proven its effectiveness by identifying and intercepting unresponsive radar contacts, keeping our ports and harbors more secure from unknown vessels and the threats they may pose.

Another aspect of our operational flexibility and agility is our ability to provide leadership in emergency circumstances. The dramatic challenges posed by Hurricanes Katrina and Rita in the late summer of 2005 provided a test for the Coast Guard to provide new emergency-response and military/civilian coordinating capabilities for the nation. The Coast Guard provided search and rescue, command capabilities, and communications connectivity between the local area and national authorities, and demonstrated the ability to operate closely with elements of the other armed forces and regional, state, and local first-responders. Coast Guard cutters, boats, and aircraft—superbly assisted by the Coast Guard Auxiliary and Coast Guard Reserve—saved more than 33,500 lives and MEDEVACed nearly ten thousand people. This was an absolutely phenomenal response by dedicated Coast Guard men and women, many of whom lost their own homes in the catastrophic winds, storm surge, and flooding.

ENHANCED CAPABILITIES NEEDED

At the heart of providing enhanced capabilities for the Coast Guard is the Integrated Deepwater System (IDS) program—the largest in Coast Guard history. The IDS program aims to modernize virtually every element of the Coast Guard

operating forces. While new ship and aircraft procurement is under way, current platforms are receiving technology and equipment upgrades that are having an immediate impact on our operations. For example, cutters and helicopters equipped with the first flight of DEEPWATER command, control, and communications upgrades were used in dealing with the aftermath of Katrina and Rita. These same DEEPWATER upgrades are helping us to track and interdict more effectively drug smugglers with our aging fleet (which is being called on to stretch farther each year), as evidenced by drug seizures continuing to reach record-high levels.

It is important to realize, however, that DEEPWATER is network centric, not platform based. Commercial-off-the-shelf (COTS) and Navy-compliant C4ISR systems that network our assets together to increase dramatically maritime domain awareness are at the heart of the IDS "system of systems." For example, I was privileged to inaugurate the establishment of a new Coast Guard Communication Area Master Station Atlantic (CAMSLANT) center in spring 2006. The center provides additional capacity to build out new C4ISR capabilities under the DEEPWATER program and to provide better communications among airborne assets, assets afloat, and shore command and control—both clear and classified systems and better access to centralized databases and programs in support of our missions.

Times have changed from the days when our only expectations were for the very limited communications allowed by small, radio-centric data "pipes"—satellite networks now allow everything from underway Internet access to personal e-mail—but connectivity and bandwidth gaps are still challenges. The DEEPWATER project promises to improve that access and connectivity, linking our mission-essential systems to tactical units in ways we could not have imagined a few years ago. The new CAMSLANT facility, matched by a similar facility on the West Coast for the Pacific region, will be a communications hub about which the Coast Guard operates.

We do, however, face significant challenges in this broad-spectrum modernization and recapitalization of our aging inventory of cutters, aircraft, and supporting systems. Indeed, we are sustaining a fleet approaching block obsolescence at the same time as we plan for its replacement with converted or new assets—all the while carrying out a significantly expanded mission set at record operational tempos. We are beginning to see results.

SHAPING OUR FUTURE

To address these challenges and more, Admiral Allen has set a new course to ensure that we can more effectively meet twenty-first-century demands. This

reform effort has focused initially upon a new approach to acquisition, logistics, and operations.

First, he has set in motion a process to create a single acquisition system in the Coast Guard by consolidating the DEEPWATER acquisition's Program Executive Office (PEO) with the Directorate of Acquisition. With the consolidation of the Acquisition Directorate and the IDS PEO, the Coast Guard can develop an integrated doctrine for acquisition, strengthen our acquisition core, and garner enterprise-wide efficiencies.

Second, a reform of the logistics process will be facilitated by the emergence of a single acquisition system. The goal is to create a more responsive and responsible logistics organization designed to support operational mission effectiveness at the lowest achievable costs. The desired outcome is to craft acquisition and business processes designed to ensure mission effectiveness while minimizing total ownership costs.

Third, a new approach to organizing and deploying Coast Guard assets is envisaged, centered on creating a Deployable Operations Group. By grouping specialized operational capabilities into tailored deployable force packages under a unified chain of command, we will optimize the employment of these forces for maritime disaster and threat responses. More importantly, we will be better able to integrate these Coast Guard forces with other DHS and federal and state capabilities, such as customs and border protection and immigration and customs enforcement, law enforcement, urban search and rescue teams, disaster medical assistance teams, and Department of Defense forces.

Finally, reform of our acquisition process is crucial to ensuring that the "24/7" Coast Guard is ever more responsive to twenty-first-century challenges, threats, and hazards. Our goal is to meet our responsibilities at even greater efficiencies and effectiveness, guaranteeing that we will be able to deploy our "shield of freedom" forces wherever and whenever needed.

We must have modern, fast, reliable aircraft, cutters, and boats, networked within a C4ISR system that links civilian and military organizations and forces. We need properly equipped people with the right safety and protective equipment for them to carry out their missions, and the right sensors and information for them to do their jobs effectively. We have absolutely incredible people in the Coast Guard who do the very best jobs that they can. We need to support them fully with new resources and a restructured Coast Guard if we are to meet our responsibilities to the American people more effectively.

In short, as the Coast Guard shapes its future, it has become a service central to the security of the American people here and abroad. It is a key link within the DHS in integrated planning and execution of key homeland security roles, missions, and tasks. In the context of the Global War on Terrorism, extended

homeland security is required. To contribute to extended homeland security, our overseas commitments and operations have been augmented. And with the upsurge in maritime trade, our ability to work with trading nations and commercial sectors worldwide is being strengthened.

Indeed, much remains to be done. With greater challenges come greater responsibilities. America's Coast Guard is ready to shoulder those responsibilities—*Semper Paratus!*

STRATEGIC CULTURE AND ITS RELATIONSHIP TO NAVAL STRATEGY

Roger W. Barnett

At the Naval War College's Current Strategy Forum in June 2006, the Chief of Naval Operations, Admiral Michael Mullen, called for the creation of a new maritime strategy. The key for the Navy, Marine Corps, and Coast Guard in formulating a new strategy will be in describing how, within the context of a national military strategy, maritime forces can make a strategic difference. There are three parts to this requirement. First, it should be cast as a *strategy.* Secondly, it should be closely aligned with national military strategy, for, as Samuel Huntington sagely observed over fifty years ago,

> The resources which a service is able to obtain in a democratic society are a function of the *public support* of that service. The service has the responsibility to develop this necessary support, and it can only do this if it possesses a strategic concept which clearly formulates its relationship to the national security.[1]

And, thirdly, the strategy must be in harmony with Navy strategic culture.

When the Navy's Cold War maritime strategy was crafted in the early 1980s, it fulfilled each of these three requirements.[2] It was a strategy because it had strategic context: it addressed a specific adversary in specific geographic places along a phased transition in time. It was not doctrine, which tends to be essentially context free. It was complementary to the national, and NATO, strategy of flexible response, and it offered a way to employ naval forces (including allied naval forces) in order to take the war to the Soviets in places, against targets, and at times of our own choosing, not theirs. The question the crafters of the strategy asked themselves was:

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How can naval forces employ the dimensions of warfare—time, geographic space, and intensity—to influence the course and outcome of the war?

The maritime strategy of the 1980s was successful in underwriting plans and programs, actions with U.S. allies, and peacetime deployment patterns and exercises. It was opposed by many in the Department of Defense, other military services, American civilian strategists, and, to be sure, the Soviet military. It was characterized as too risky, too dangerous, too provocative, too offensive, peripheral to the central conflict, wasteful of resources in a sideshow, mere justification for programs, too rigid, too independent, not specific enough for programming purposes, not detailed enough to use for operational planning, and contrary to—in fact, hostile to—the objectives of naval arms control. The fact that it raised such a panoply of objections was a tribute to its power. Critics had visions of mindless maritime martinets marching mechanically to Murmansk.[3] The strategy was, however, embraced by the naval service and, with the leadership of a very activist Secretary of the Navy and a generous defense budget, supported an expansion toward force-level goals of fifteen carrier battle groups, six hundred combatant ships, and a robust amphibious lift capacity.

In large measure, it was looked upon favorably by the naval community because it was in harmony with Navy strategic culture. Accordingly, if a new strategy is to be successful, it also must resonate with Navy strategic culture.

The major, enduring characteristics of this culture, or community of shared beliefs and attitudes, are:

- Recognizing the primacy of context
- Maintaining a systems approach
- Performing in an expeditionary manner: offensive, forward, mobile, and joint
- Ensuring adaptability
- Accounting for inherent uncertainty and risk.

These characteristics are specific, yet they are broad enough to encompass the Navy's tripartite organizational culture of surface, subsurface, and air communities. It would appear, moreover, that the Marine Corps, with some augmentation by its unique cultural factors, can fit comfortably within this framework.

CONTEXT

The environment influences very powerfully both how naval forces can operate and how they do operate. The thought patterns of seafarers are powerfully molded by the essentially featureless, politically uncontrolled seascape. Both the

open ocean and the littoral are environments hostile to sailors. The environment must be mastered and kept under control first; then attention can be directed toward strategic objectives.[4]

The maritime environment is fundamentally nonlinear. That is, no natural or artificial lines exist around which to organize reconnaissance, surveillance, or battle. There are no flanks, no forward edge of the battle area, and no rear. Missions can be executed simultaneously or sequentially. The senses operate differently and have different priorities. There is no role for the senses of smell, touch, or taste. Sight and hearing, moreover, must be artificially enhanced even for survival.

In such an environment, concepts rule—that is, the context is so overwhelming and powerful that doctrine must take a back seat. Take, for example, the horizon. The horizon is a concept. You can't get there from here or anywhere else. But adversaries can place themselves just beyond the horizon, and without overhead assets an at-sea commander will not know they are there. Moreover, the environment is truly three-dimensional, insofar as it has dimensionality in depth as well as in height.

If a new strategy is to be successful, it must resonate with Navy strategic culture.

Concepts are more important to a naval strategist than doctrine is. This is because concepts and doctrine tend to be enemies. Concepts are undefined, not clearly bounded, changing and changeable; doctrine is defined, bounded, difficult to change, and relatively inflexible. Admiral Chester Nimitz had it just right: he considered doctrine as a reminder, sort of a checklist to ensure nothing is forgotten or overlooked.[5]

The at-sea environment is very different from where people live. All the familiar things—family, school, community, friends—are radically different from what they are at "home." There are no constant reminders of home. Neither trees, houses, river banks, highways, mountains, nor malls are in evidence.

In such an environment, the most difficult problem facing a commander is *finding the adversary.* The corollary, of course, is to take actions so that the adversary cannot find you. This is a two-sided question of establishing and denying sanctuary, and it persists for twenty-four hours a day, 365 days a year. When terrain is part of the environment, it influences the ability to find seaborne adversaries. This explains the operational importance of geographic choke points and ports. Darkness and weather are environmental factors to be taken into consideration as well.

The corollary to the importance of findability is also pivotal for maritime forces: that they take positive actions to prevent their being found by an adversary. If ships or submarines can be found on vast ocean tracts or under the deepest oceans, they become vulnerable. If they are vulnerable, the possibility of their being sunk looms real, and their prospective value comes into question, for they cannot be reconstituted.

The importance of the overall context of the conflict and of understanding the adversary's strategy can be understood when one considers the great debate that accompanied the inclusion of attacks on Soviet ballistic missile submarines in the 1980s maritime strategy. This was controversial enough to cause Barry Posen to write, "We now live in the worst of all possible worlds."[6]

What Posen and others had argued was that attacking Soviet ballistic missile submarines would cause them to "use them or lose them" and that therefore doing so was of little strategic value and could cause a catastrophic holocaust. But the critics could not answer why the Soviets would protect the submarines if they would use them or lose them, instead harping on their slogan while refusing to address the context, which was crucial to understanding the strategic interaction.[7]

So strongly influencing to maritime strategy is the question of context that one of Napoleon's maxims asserts: "A general commanding an army and an admiral commanding a fleet need different qualities. The qualities necessary to command an army are born in one; but those necessary to command a fleet are acquired only by experience."[8]

SYSTEMS APPROACH

Those proficient in maritime warfare think in systems terms. Land warfare experts think in terms of units. When an army officer briefs, the first thing he displays is an organizational chart. He lives and dies by organizational charts, for a commander must know where his air defenses and field kitchens are and what unit is supplying his MPs, for example. When the admiral arrives on the scene, he has no thoughts at all of where these things are or who is supplying them. He is thinking in terms of air defense systems, antisubmarine systems, of mine warfare, amphibious, logistics, and strike systems. It is not accidental that network-centric warfare originated in the Navy and that a naval officer wrote a book about a "system of systems."[9] Naval officers are entirely comfortable with electronic systems and networks. Indeed, the first radar-directed dogfight took place at sea in February 1942, and the Naval Tactical Data System, with its intership and aircraft links, went to sea over forty years ago.[10] As Wayne Hughes noted, "All navies are concerned with the movement and delivery of goods and services rather than with 'the purchase of real estate.' Thus, a navy is in the *links,* not the

nodes business."[11] Commenting on naval operations in World War II, Fleet Admiral William F. Halsey is reported to have said, "A fleet is like a hand of cards at poker or bridge. You don't see it as aces and kings and deuces. You see it as a hand, a unit. You see a fleet as a unit, not carriers, battleships and destroyers. You don't play individual cards, you play the hand."[12] Of course, Metcalf's Law—to the effect that the power of a network increases as the square of the number of nodes—gives additional support to the notion that numbers really matter in sea warfare.

This mode of thought begins in elementary naval training and education, and it continues throughout a naval career. It encourages approaching questions—including strategies—from a holistic, systematic point of view.

If it is correct that naval thinking is systems based, it would seem axiomatic that navies would be great advocates of jointness—linking up with complementary and supplementary sources of information and action. Yet the Navy has traditionally been cool to jointness, viewing it essentially as a one-way street: the Navy knows full well what it can do for the other services, but it is skeptical of what they can do for it. In an era of networking, when assets—and especially information—can be accessed and put to advantage quickly and easily, the Navy must and will be more forthcoming with respect to jointness.

EXPEDITIONARY

The third aspect of Navy strategic culture is that it is very strongly expeditionary. That means naval forces are not garrison forces but are forward deployed and ready for offensive action at all times. It means fully mobile, not static, forces.

Maneuver, correctly understood as movement *relative to an adversary,* is not an option for naval forces but a way of life. The Navy is always maneuvering; it is maneuver that makes offense, defense, and logistical support effective. Maneuver accomplishes nothing on its own: it enables the other functions. As Muhammad Ali said, "Float like a butterfly, sting like a bee." It is not the float but the sting that matters.

From the early 1960s until the adoption of the Cold War maritime strategy of the 1980s, the Navy was relegated by the Office of the Secretary of Defense to a role of defensive sea control. The Navy chafed at this, considering it derisively as "hauling ash and trash." When the Maritime Strategy, a sharp break from a defensive sea control posture, was presented at the Army War College in 1983, an irate member of the audience suggested that the Navy was not interested in protecting the vital sea lanes that carry the reinforcement and resupply convoys to Europe in case of war, that all the Navy was seeking was support for its expensive big-deck carrier programs while impoverishing the Army. The presenter responded, "The Army is not defending Texas. It's in Germany." The

point registered was that the Navy, by pinning down Soviet submarines north of the Greenland–Iceland–United Kingdom Gap and by filtering out the Soviet naval aviation threat, was providing protection for the sea lanes in the same way the Army was defending Texas—that is, by operating in forward areas.

At sea, it is important to "attack effectively first," as Wayne Hughes has also wisely counseled.[13] It is also vital that a navy with global reach have the capability to project power ashore with guns, missiles, or aircraft, or employ Marines in operational maneuver from the sea. All these entail offensive capability to achieve offensive objectives.

Forward deploying means interaction with allied navies, and the Navy has always worked assiduously at initiating and fostering such links. From the biennial International Seapower Symposium series first convened in 1969 to the establishment at the Naval War College of the Naval Command College in 1956 and the Naval Staff College in 1972, to the conduct of navy-to-navy staff talks with many navies for nearly thirty years, to the suggestion by the Chief of Naval Operations of a thousand-ship navy in 2005, the Navy has been in the forefront of international cooperation for the freedom of the seas and for the ability to use the seas in securing national interests. Forward presence also means that naval forces, unlike those of the other services, can be positioned and configured in a way that leaves to the adversary the decision to break the peace. That is, others must take U.S. and allied naval units on the scene into account before they act in ways contrary to American interests.

ADAPTABILITY

The fourth cultural aspect of interest is adaptability. Warfare has been likened to a complex adaptive system, and a major aspect of strategy is anticipation. An effective strategy must anticipate actions of a thinking adversary, and then it must be sufficiently adaptive to prevent or neutralize the adversary's counterefforts. To the extent that anticipation is lacking or that one is surprised, the greater will be the need for adaptability. Ways (strategies) exhibit various degrees of adaptability. Means (forces), on the other hand, exhibit various degrees of flexibility. Flexibility should also be a conscious by-product of training and education.[14] A good strategy is supported by flexible forces and flexible frames of mind, providing it as many dimensions of adaptability as possible. Adaptability is built into the strategy and must be a prime consideration for the preparation of plans and of the commander's intent.

Adaptability, characterized by individual initiative and freedom of action, has long been a strength of the Navy. As Victor Davis Hanson has observed, "At critical stages during the planning, fighting, and aftermath of the battle [of Midway], American military personnel at all ranks were unusually innovative,

even eccentric, and always unpredictable. Most were unafraid to take the initiative to craft policy when orders from superiors were either vague or nonexistent—in a fashion completely antithetical to the protocols of operations in the imperial fleet, which in turn mirrored much of the prevailing values and attitudes inherent in Japanese society."[15] Moreover, "Individualism, unlike consensual government and constitutional recognition of political freedom, is a cultural, rather than political, entity."[16]

The need for adaptability in the battle space helps to explain the Navy's coolness to the prescriptive nature of written doctrine. Doctrine, as it is understood in the joint arena, "connects the dots." But then it goes a step farther and says: "See the lines connecting the dots? You must color inside the lines."[17] This runs directly counter to the Navy's need for adaptability at the lowest levels of command. As Colin Gray has written, "If we fail the *adaptability* test, we are begging to be caught out by the diversity and complexity of future warfare."[18]

UNCERTAINTY AND RISK

Much has been written about uncertainty and risk. Clausewitz's categorization of fog and friction in warfare has a long audit trail.[19] The sources of uncertainty stem from information deficiencies; the misalignment of ends, ways, and means; the nonlinearity of combat-related effects, resulting in unanticipated or unintended consequences; and external constraints on the application of military force.[20] Risks arise from, and are measured by, the magnitude of these uncertainties. Uncertainty and risk are always present and unavoidable. Still, as has been known from the time of the ancient Greeks, "He who does not expect the unexpected cannot detect it."[21]

A successful strategy should discuss uncertainty and risk and describe how the strategy has been designed to cope with these, so that it does not result in the worst of all possible outcomes for a strategy—catastrophic failure. If a strategy fails, it should be designed to fail gracefully and then recover. Analysis and detailing of uncertainty and risk inherent in the strategy and in the context in which it will be applied are key. Long ago, Louis Pasteur pointed out that "chance favors the prepared mind."[22]

Uncertainties are those things for which assumptions must be made in the crafting of a strategy. Typically they encompass, for example, warning and decision times; the expected length of an engagement, campaign, or conflict; whether certain classes or types of weapons will be employed; the relevance and effectiveness of training; the sturdiness of the morale of the force; whether systems will perform up to operational expectations; and the effects of operational or technological surprise. All these and more must be considered and accounted for in the preparation and adoption of a strategy.

SALTWATER IN THEIR VEINS

When crafting a strategy, one must proceed with due appreciation for the central cultural tenets of those who will plan and execute. At the top of the list, affecting all other considerations, is the matter of context. The maritime strategy of the 1980s, prepared in the context of a global war with the Soviet Union, is now obsolete. There is no single driving context against which to write a maritime strategy for the future.

Indeed, the current context of conflict will require U.S. military forces to:

- Deploy somewhere they perhaps have never been
- Fight an adversary they have never fought
- Use weapons and equipment that might have never been used in combat, often in ways that were never intended
- Execute their orders regardless of weather or visibility
- Continue to perform in the horrific presence of death or wounding of friendly fighters as well as adversaries
- Operate on the basis of incomplete, untimely, and perhaps incorrect information
- Pursue sometimes vague, conflicting, or incomprehensible objectives
- Conduct combat operations under the unblinking eye of the television camera and the constant scrutiny of the press
- Tolerate long separations from family and loved ones
- Endure lukewarm public support, sometimes open hostility, from the home front
- Absorb minimum casualties from an adversary that might fight in unconventional, unanticipated, or illegitimate ways; that might be under the influence of performance-enhancing drugs; or that may employ nuclear, chemical, biological, or radiological weapons
- Achieve their objectives (i.e., win) quickly
- Inflict minimum casualties on the adversary
- Cause minimal destruction to property and the environment and minimal casualties to noncombatants, provide assistance to injured combatants and noncombatants, and be prepared to restore that which has been damaged
- Trigger no (or only benign) unintended consequences

—and all the while hobbled by rules (doctrine, international law, principles of war, rules of engagement) formulated in and for a radically different context.

This will mean that one might have to prepare several strategies to meet different requirements, or a multitiered strategy. How this will be approached is a function of how the crafters of the strategy view the relationship between naval strategy and the national military strategy. If the national military strategy is holistic enough to deal with a variety of contexts, it is possible that a single maritime strategy could support it. To the extent that the national military strategy and national guidance is ambiguous or insufficient to make a clear delineation as to how to proceed, the maritime strategy will itself necessarily contain areas that are more abstract than would otherwise be desirable.

The preparers of the strategy, mindful of both the force and value of the cultural factors set forth above—the primacy of context in a systems-based, expeditionary, adaptable approach, with a clear focus on uncertainties and risks—must also concern themselves with the forces that would be necessary to execute the strategy. This concern, however, should be set aside during the preparation of the strategy, which should not be subject to explicit force size or fiscal constraints. That is, one should prepare an ideal maritime strategy that is fully complementary to the national military strategy, that describes how naval forces can make a strategic difference. Only after that has been accomplished should one try to determine if forces are or will be available that can fulfill the requirements with acceptable levels of risk. If the judgment is that they will not, one must either seek more capable forces, modify the strategy, or be prepared to accept greater levels of risk. This is a never-ending process, but it must be undertaken if naval forces are to be empowered to exert maximum strategic leverage.

How can naval forces employ the dimensions of warfare—time, geographic space, and intensity—to influence the course and outcome of the war?

The preparers of the strategy should be practitioners—Navy and Marine Corps officers with saltwater in their veins and relevant education. This is important, for as Edward Luttwak has written, "To evoke the intense loyalty without which combat is impossible, armed forces must be the proud keepers of exclusive traditions and reassuring continuities."[23] To this end, those naval authors should be provided a set of precepts against which to prepare the strategy. These precepts would include the relevant context, framework, and cultural signposts for what is to be included. It is to the generation of a set of precepts, as comprehensive as possible, that the New Maritime Strategy Process launched by the Chief of Naval Operations should be dedicated.

NOTES

An abbreviated version of this article was presented to a Center for Naval Analyses conference, "The Future of Maritime Strategy," on 25 October 2006.

1. Samuel Huntington, "National Policy and The Transoceanic Navy," U.S. Naval Institute *Proceedings* 80, no. 5 (May 1954), p. 483.
2. For analysis of and materials on the development of that document, see John B. Hattendorf, *The Evolution of the U.S. Navy's Maritime Strategy, 1977–1986,* Newport Paper 19 (Newport, R.I.: Naval War College Press, 2004), available at www.nwc.navy.mil/press/npapers/np19/np19.pdf.
3. See Roger W. Barnett, "U.S. Maritime Strategy: Sound and Safe," *Bulletin of the Atomic Scientists* (September 1987).
4. "The Navy is always at war, because it is always fighting winds and waves and fog. The Navy is ready for an instant blow. . . . The ocean is limitless and unobstructed; and the fleet, each ship manned, gunned, and provisioned and fuelled, ready to fight within five minutes." Sir John Fisher, 1919, quoted in Robert Debs Heinl, Jr., *Dictionary of Military and Naval Quotations* (Annapolis, Md.: Naval Institute Press, 1966), p. 210.
5. E. B. Potter, *Nimitz* (Annapolis, Md.: Naval Institute Press, 1976), p. 222.
6. Barry R. Posen, "Inadvertent Nuclear War? Escalation and NATO's Northern Flank," *International Security* (Fall 1982), pp. 28–82.
7. For an extended discussion, see Roger W. Barnett, "Soviet Strategic Reserves and the Soviet Navy," in *The Soviet Union: What Lies Ahead?* ed. Kenneth M. Currie and Gregory Varhall, Studies in Communist Affairs, vol. 6 (Washington, D.C.: U.S. Government Printing Office, 1985).
8. Available at www.pattonhq.com/militaryworks/napoleonmaxims.html.
9. Bill Owens, *Lifting the Fog of War* (New York: Farrar Straus Giroux, 2000).
10. See David L. Boslaugh, *When Computers Went to Sea* (Los Alamitos, Calif.: IEEE Computer Society, 1999).
11. Wayne P. Hughes, Jr., "Naval Maneuver Warfare," *Naval War College Review* 50, no. 3 (Summer 1997), p. 28 [emphasis original].
12. Available at tinyurl.com/ydoxcm.
13. Wayne P. Hughes, *Fleet Tactics: Theory and Practice* (Annapolis, Md.: Naval Institute Press, 1986).
14. "Mahan's historically based policy analysis was a matter not so much of identifying trends and extending them, or of simple reasoning by analogy, but of applying judgment that had been well schooled in the study of complex historical phenomena, with due appreciation for the bounded but still significant and possibly even decisive role that contingency could play." Jon Tetsuro Sumida, *Inventing Grand Strategy and Teaching Command: The Classic Works of Alfred Thayer Mahan Reconsidered* (Washington, D.C.: Woodrow Wilson Center, and Baltimore, Md.: Johns Hopkins Univ. Press, 1997), p. 106.
15. Victor Davis Hanson, *Carnage and Culture* (New York: Doubleday, 2001), p. 355.
16. Ibid., p. 386.
17. Mahan limned this clearly: "The French word *doctrinaire,* fully adopted into English gives warning of the danger that attends doctrine; a danger to which all useful conceptions are liable. The danger is that of exaggerating the letter above the spirit, of becoming mechanical instead of discriminating. This danger inheres especially in—indeed, is inseparable from—the attempt to multiply definition and to exaggerate precision; the attempt to make a subordinate a machine working on fixed lines, instead of an intelligent agent, imbued with principles of action, understanding the general character not only of his own movement, but of the whole operation of which he forms part; capable, therefore, of modifying action correctly to suit circumstances." Alfred Thayer Mahan, *Mahan on Naval Strategy: Selections from the Writings of Rear Admiral Alfred Thayer Mahan* (Annapolis, Md.: Naval Institute Press, 1991), p. 349.
18. Colin S. Gray, *Recognizing and Understanding Revolutionary Change in Warfare: The Sovereignty of Context* (Carlisle, Pa.: U.S. Army

War College Strategic Studies Institute, February 2006), p. vii, available at www.StrategicStudiesInstitute.army.mil/.

19. See especially Barry Watts, *Clausewitzian Friction and Future War,* McNair Paper 52 (Washington, D.C.: Institute for National Strategic Studies, 1999).
20. For significant detail see Roger W. Barnett, *Asymmetrical Warfare* (Washington, D.C.: Brassey's, 2002).
21. Heraclitus, available at www.pshrink.com/wisdom/.
22. Quoted at en.wikiquote.org/wiki/Louis_Pasteur.
23. Edward N. Luttwak, review of *Lifting the Fog of War,* by Bill Owens, *New York Times Book Review*, 21 January 2001, p. 21.

THE LIMITS OF INTELLIGENCE IN MARITIME COUNTERPROLIFERATION OPERATIONS

Craig H. Allen

It might come as a surprise to many of those immersed in the current debate over how best to guard against the further proliferation of weapons of mass destruction (WMD) that the alarm over the "growing number of nations in positions to acquire mass annihilation weapons" and the potentially synergistic threat of state-sponsored terrorism was sounded at least two decades ago, in Reagan-era naval maritime strategy documents authored by Admiral James Watkins.[1] Naval forces have long been at the vanguard of global counterproliferation efforts. Nearly a half-century ago, the Navy was tasked with establishing and enforcing a "quarantine" to intercept Soviet nuclear missile shipments to Cuba. In the intervening years, the maritime components of combined and joint force commands, along with the U.S. Coast Guard elements of the National Fleet, have frequently been called upon to stem the flow of contraband by sea. The debt owed by the naval forces to the intelligence community for the success of those operations is well documented.[2] All would likely agree, however, that the magnitude of the threat posed by WMD proliferation demands that the entire spectrum of counterproliferation measures and supporting intelligence activities be subject to continuous scrutiny, with a view to improving the accuracy and speed of the processes.

In 2003, President George W. Bush launched the Proliferation Security Initiative (PSI) to counter the proliferation of WMD and their delivery systems and thus prevent them from falling into the hands of rogue regimes and terrorist organizations. The PSI has been described as a political commitment, not a new legal obligation or international organization.[3] Although it came under criticism in its first year, by the time of the third anniversary meeting in Krakow

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in 2006 sixty-six states had signaled their support for the PSI;[4] the Russian Federation had joined the original group of core participants; the participating states had adopted a Statement of Interdiction Principles;[5] and six flag states had entered into treaties to facilitate PSI boardings of their vessels.[6] In 2004, the United Nations Security Council added to the legitimacy of the fledgling PSI approach by acknowledging the threat to international peace and security posed by WMD proliferation and underscoring the need for states to prohibit illicit proliferation and to cooperate in measures to enforce those prohibitions.[7] Multilateral cooperation and coordination measures like the PSI provide a flexible, responsive, non-treaty-based approach to achieving the Security Council mandate for cooperation.

The long-term practical and political success of a counterproliferation initiative like the PSI will be determined in large measure by the availability of timely and accurate intelligence to the decision makers and their field operators. "Practical" success will turn on the extent to which, through inducement, deterrence, prevention, and interdiction, the production or transfer of weapons of mass destruction and their related materials and delivery systems from producer to the aspiring user is thwarted. Because the PSI, like the more recently launched global maritime partnership concept, is indeed a "political" commitment and not a legally binding international obligation, actual and perceived legitimacy will be crucial to its long-term viability. Legitimacy will be enhanced if operations are grounded in accurate intelligence, interference with navigation rights is minimized, the use of force is strictly limited to that which is necessary and reasonable, and the interdicting states demonstrate their willingness to compensate those who suffer losses as a result of PSI interdictions that later prove unfounded. Intrusive interdictions based on intelligence that ultimately proves faulty will tend to erode public confidence in the program and may shake the resolve of other PSI participating states. Unjustified counterproliferation operations might also undermine the already fragile nonproliferation regime. It is readily apparent that the information demands of counterproliferation forces will present a daunting challenge for the intelligence community.

This article begins with an examination of the intelligence needs of those engaged in maritime counterproliferation efforts. It then turns to risk-management decision making under conditions of uncertainty, focusing on decisions at the operational level and exploring the question of whether decision strategies in the WMD context should seek to minimize false-negative or false-positive errors. It concludes that even vastly improved maritime intelligence will not obviate the need for national and operational commanders to make decisions under conditions of uncertainty and that such decisions should be made on the basis of established risk-assessment and management principles. At the same time,

risk management analysis must be sensitive to the public's attitude toward risk. When possession of WMD is at stake, sound risk management that gives appropriate weight to the public's preferences might well call for action even where the relevant event probabilities are quite low.

INTELLIGENCE DEMANDS OF MARITIME COUNTERPROLIFERATION OPERATIONS

Maritime counterproliferation operations are but one component of the global and national WMD proliferation risk management strategy. Like all risk management strategies, the WMD strategy process begins with a risk assessment.[8] Where possession or use of weapons of mass destruction is at risk, estimates must look beyond mere event probabilities; they must fairly weigh the extraordinary magnitude of the risks. It is often said that the detonation or release of a weapon of mass destruction, particularly a nuclear device, is a low-probability event—even an extremely low probability event—but one with destructive potential so enormous that it presents what most consider to be an unacceptable risk.[9] To this observation risk management analysts often add the warning that in responding to WMD risks, managers must be successful in their risk management measures every time, while the malefactors who would unleash such weapons need be successful only once.[10]

The U.S. *National Strategy to Combat Weapons of Mass Destruction* establishes among its highest intelligence priorities "a more accurate and complete understanding of the full range of WMD threats."[11] It emphasizes that intelligence will be crucial in developing effective counterproliferation policies and capabilities and in deterring and defending against known proliferators and terrorist organizations.[12] The president's directive on maritime security policy similarly emphasizes the importance of a "robust and coordinated intelligence effort [that] serves as the foundation for effective security efforts in the maritime domain."[13] It was in response to this directive that a number of integrated maritime security planning documents, including the *National Strategy for Maritime Security* and the *National Plan for Achieving Maritime Domain Awareness,* were produced. To meet more effectively the urgent demand for maritime domain intelligence integration and distribution, the president further tasked the involved agencies to prepare the document that became the *Plan for Global Maritime Intelligence Integration* (or GMII Plan).[14] The closely related *Maritime Operational Threat Response Plan* (MOTR Plan) provides the framework for coordinated, unified, timely, and effective response planning and operational command and control of maritime security incidents.[15]

Decades of experience in narcotics interdiction and the testimony of thousands of boarding officers witness the inestimable value of intelligence to

maritime interception operations.[16] The forces available for maritime counterproliferation operations are finite, not nearly adequate to cover the world's oceans or to board even a fraction of the vessels operating on those oceans. Moreover, the dangers and practical difficulties demand that at-sea boardings and searches be relied upon only when warranted by the circumstances. Finally, the president has made it clear that maritime interception and enforcement should be conducted in a manner that does not *unnecessarily* interfere with maritime commerce or the freedom of navigation. Better intelligence reduces the potential for unwarranted interference with those vital interests.

The intelligence community, including any organic components of the operating forces involved, provides (in the language of the well known "OODA loop") the "observe" and "orient" bases by which those charged with control over operations are to "decide" and "act."[17] The intelligence demands of counterproliferation decision makers and operators will likely differ in several respects from those of their nonproliferation counterparts. Not least among the differences will be the timeliness demands of a forward-leaning counterproliferation strategy that envisions interdicting WMD shipments during transit. The nonproliferation program relies chiefly on relatively long-term, strategic intelligence; by contrast, counterproliferation operations demand timely indications and warnings intelligence for each component in a layered defense scheme. The inverse relationship between certainty and speed is readily apparent: any additional time allocated to the observe and orient phases comes at the expense of the time remaining to decide and act. Not everyone agrees with how the time available should be allocated. Those charged with tactical thinking tend to emphasize speed of decision making ("faster is better"), while those entrusted with strategy are more inclined to prefer accuracy ("smarter is better").

Losses that could result from a false negative might well be incalculable.

Multilateral activities introduce an additional consideration. Multilateral decision processes virtually always take longer to develop, and they generally raise the intelligence bar, because the level of certainty for multilateral actions must meet the standard set by the most demanding participant. Interagency consultation processes like the scheme established by the MOTR Plan may have the same effect. Additionally, if the intercepting forces must first obtain the consent of the vessel's flag state or a coastal state, that government's information requirements must be met, even if disclosure might compromise intelligence sources or methods. The flag state will likely demand more information and greater certainty where the vessel must be diverted to accomplish the boarding or when force might be necessary to compel compliance.

Intelligence in support of counterproliferation must be adequate to answer the most pressing questions that maritime interception forces will pose regarding shipments of WMD and related materials.[18] The intelligence challenge will often begin with the "What?" question.[19] It is improbable (but nonetheless possible) that proliferators would attempt to transport an assembled and operational WMD device via commercial seagoing vessels. It is more probable that maritime shipments would consist of components, precursors, or small quantities of fissile or radiological materials. In some cases those materials would be dual-use in nature, presenting additional challenges for analysts and operators, who might not be familiar with the characteristics and applications of the materials or equipment.[20]

The second challenge will be to provide answers to the "Who?" question: Who are the parties to the suspected WMD transfer and transport transaction? It is necessary to know the identities of the consignor, consignee, and the owner and flag of the vessel, in order to assess the risk and determine which states might have jurisdiction over the vessel and whose consent or cooperation would therefore facilitate interdiction. Closely related to "Who?" is the question of the actors' intent: Why are they seeking the materials or equipment? Intent—which, unlike "Who?" and What?," always requires analysis—is critical where dual-use materials or equipment are involved. Whether a given shipment is illicit and a candidate for interdiction may turn on the identity of the end user and the nature of the intended end use. Analysts and commanders evaluating possible courses of action and the urgency of the need for action understand that the risk posed by the availability of WMD is in part determined by the willingness of the entity in possession to deploy the weapon.

The next questions the commander is likely to ask in forming an estimate of the situation and choosing a course of action concern time and space factors: Where and when will the illicit WMD likely be transported, and, perhaps, how will it be carried out? Interdictions at sea can present significant legal and practical problems. The intelligence community must be prepared to provide, if possible, accurate information on both the location of the ship and the illicit materials onboard. The "When?" question should produce an assessment of the last practicable opportunity to prevent the delivery of WMD materials to the state or nonstate actor of proliferation concern. For a variety of reasons, dockside inspections are preferable to at-sea boardings. Maritime interception forces in receipt of information that a ship under charter to a well known commercial carrier is believed to have ten drums of chemical warfare component materials in one or more of five thousand containers will likely explore alternatives to boarding at sea, perhaps raising the always contentious question of whether the intelligence is sufficiently reliable to justify diverting the vessel to a port.

Decision makers and operators will also want to know who else might be involved in the transaction. Interdicting a shipment is only one element of the larger counterproliferation strategy. The emergence of proliferation networks, such as the lucrative multinational enterprise operated out of Pakistan by A. Q. Kahn, amply demonstrates that nonstate actors now participate as both suppliers and consumers of WMD technology.[21] Those global networks must be identified and interdicted as well. The networks' financial assets must also be located and frozen or seized. Finally, decision makers will want to know the degree of confidence in the intelligence assessment. In many cases, it will be based on analysts' subjective judgment of probability. In contrast to objective probabilities—derived, for instance, from accurate and reliable sources like mortality tables—subjective probabilities involve events the likelihood of which can only be estimated, based in part on the judgment and experience of the analyst. (For example, President John F. Kennedy is said to have estimated the probability of war with the Soviet Union during the Cuban missile crisis as one in three.) Because such judgments are influenced by a variety of factors and are subject to cognitive errors, they are likely to differ from one person to another.[22] Candid evaluations that are clear about the bases of the probability assessment, any ambiguities in the evidence relied on, the degree of uncertainty, and whether competing theories or dissenting views exist are indispensable to decision makers, who must evaluate the assessment (and the assessors), weigh the respective event probabilities, and project the potential consequences of an erroneous decision.

RISK ASSESSMENT WHEN POSSESSION OF WMD IS AT STAKE

> *Since we recognize the limits of combating WMD intelligence, planning and execution decisions will be made using limited or incomplete information.*
>
> CHAIRMAN, JOINT CHIEFS OF STAFF (2006)

The chairman's statement reminds us that limited or incomplete intelligence regarding a WMD threat does not obviate planning and execution decisions.[23] The geostrategic environment of the twenty-first century is frequently described as one fraught with uncertainty and subject to rapid and sometimes radical change. If one defines certainty as precluding any possibility of subsequent challenge in light of additional or more accurate observations or more comprehensive reasoning, uncertainty seems inevitable in the maritime counterproliferation operating environment.

Although we must accept that national security decisions must on occasion be made on the basis of incomplete or uncertain information, we may nevertheless expect them to be tempered with practical wisdom and mature judgment.

Even so, we must admit that time for making decisions is not unlimited. The commander must be prepared to complete the observation-to-action decision loop before the adversary can deliver or acquire that weapon of mass destruction. The greater certainty accruing from multiple corroborating sources may increase confidence but also impose delays the commander cannot afford.

It is important to bear in mind also that even "correct" decisions do not ineluctably produce desired outcomes. Whether a decision was correct must be judged by the quality and quantity of information reasonably available at the time it was made, not by that which was only revealed later.[24] The goal, of course, is to timely reach the correct conclusion despite any information deficit; however, the possibility of error can rarely be eliminated altogether.

Under international law and the PSI Statement of Interdiction Principles, boardings must generally be predicated on some level of suspicion of illicit activity, described by such vague formulae as a "reasonable ground" to suspect or "good cause" to believe that the vessel is engaged in the illicit activity.[25] Under U.S. law, the standard for arrest or seizure is typically "probable cause" to believe a crime has occurred. It is noteworthy that none of these measures require for field action anything approaching certainty "beyond a reasonable doubt." The practical reasons are apparent. A requirement for prior certainty that a vessel is engaged in piracy sets the bar impossibly high, permitting the vessel to operate without fear of interdiction so long as it hides the evidence reasonably well. Moreover, the degree of intrusion represented by a boarding is far less than that of seizure or arrest. The information that warrants visit or boarding might also be necessary to persuade the vessel's flag state or a coastal state through whose waters it will pass to authorize yet another state, which is willing and able to board, search, and perhaps seize the vessel, to do so. That second state is, of course, free to set its own standard for information reliability, either by treaty or ad hoc agreement.

The Value of "Good" Intelligence

The intelligence community's predilection for modest silence is well known. With few exceptions, intelligence agencies are not given to self-promoting publicity following intelligence "successes." The transparency that is otherwise the hallmark of constitutional democracies is antithetical to the long-term success of the intelligence community. It should come as no surprise, therefore, that states participating in the PSI, knowing that illicit proliferators would take advantage of such announcements to probe for weaknesses, have given notice that they may never reveal many of their interdiction activities.[26] Unfortunately, denying proliferators and transporters such an opportunity means that the public

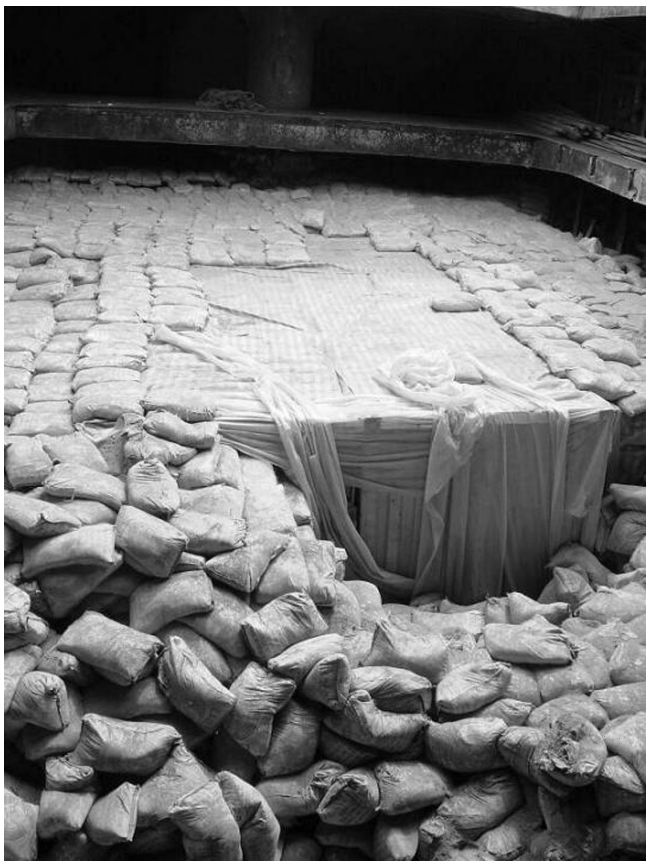
and nonparticipating states will often have no direct means of learning of the program's accomplishments.[27]

There is no shortage of books, articles, and congressional or commission reports documenting actual or perceived intelligence "failures."[28] Almost none salute the intelligence community's many successes. Modern critics might offer a brief tip of the hat to the courage and resourcefulness of the Office of Strategic Services operatives and code breakers in World War II, and perhaps to the U-2 pilots who risked (and, in one case, lost) their lives obtaining the photo images of the Soviet missile sites in Cuba that Ambassador Adlai Stevenson displayed so effectively to the Security Council, but then they tend to focus their attention quickly on the failures. Accordingly, it is fitting to acknowledge briefly two recent intelligence success stories involving maritime counterproliferation operations. The first involved the interdiction of the North Korean cargo vessel *So San*.

Spanish marines were forced to fast-rope onto deck of *So San* when it refused to comply with boarding requests.

U.S. Navy, released by Spanish Defense Ministry

In late 2002, American intelligence agencies had good reason to believe that a vessel later identified as the *So San* was transporting missiles from North Korea. They were uncertain, however, of the cargo's destination. The U.S. Navy eventually requested that a Spanish warship intercept the vessel and board it on the high seas off the coast of Yemen. A team of Spanish marines from the frigate *Navarra,* later joined by U.S. Navy personnel, conducted a noncompliant boarding of the *So San* and during the subsequent search discovered North Korean–made Scud missiles and components hidden beneath the cargo of bagged cement. Not surprisingly,



The boarding team discovered fifteen disassembled Scud missiles concealed under tons of bagged cement.

U.S. Navy, released by Spanish Defense Ministry

the missiles were not listed in the vessel's manifest. Although the ship and cargo were eventually released at the request of the government of Yemen, to which it was learned that the missiles were being shipped, the interdiction demonstrated the capability of the intelligence community to detect and track maritime WMD shipments over considerable distances. Much of the information on the *So San* interdiction remains classified; however, publicly available accounts suggest that intelligence assets detected the missiles being loaded in North Korea and tracked the vessel from there to the interception point.[29] Apparently, however, the intelligence community was unable to determine the buyer's identity before the boarding.[30]

The second incident involved the multilateral interdiction of the German-flag *BBC China* in October 2003. American and British intelligence agencies concluded that the *BBC China* was transporting component parts for uranium enrichment centrifuges from Dubai to Libya. Demonstrating the kind of cooperation the PSI was designed to foster, Germany agreed to order the vessel to divert to a port in Italy for inspection. The vessel's owner and master readily complied with the flag state's order. Italy then agreed to allow the vessel to enter one of its ports and to conduct the search. The intelligence proved accurate, leading to the discovery of thousands of parts for gas centrifuges of a kind that can be used to enrich uranium. Some suggest that the *BBC China* interdiction contributed to Libya's decision in late 2003 to abandon its WMD program.

Intelligence, Inferential Errors, and Risk Management Decisions

The fulcrum of the debate over intelligence and WMD counterproliferation in the coming years will likely be the relationship between the tolerance for risk and error, on the one hand, and our willingness to bear the financial, societal, and political costs of incremental security measures, on the other.[31] As President

Bush remarked in response to the report of the 9/11 Commission, "There is no such thing as perfect security in our vast, free Nation."[32] Nor do security decision makers often have the luxury of waiting for complete and perfect information, or for intelligence that provides the kind of assurance Israelis have described (in the *Karine A* war materiel interdiction) as "unequivocal, clear, and undeniable."[33] The goal therefore cannot be perfect security but rather optimal security, and optimal security decisions will inevitably be based not on perfect knowledge but on optimal intelligence assessments.[34]

On occasion, the assessments made by the intelligence community will later prove to be wrong. Error may result from information that is incomplete, conflicting, or susceptible to more than one plausible interpretation or inference. To simplify the analysis in this counterproliferation setting it will be helpful to posit that the "wrong" inference or conclusion might take one of two hypothetical forms. In the first, a ship that intelligence analysts have concluded is transporting WMD components is intercepted and boarded at sea; an exhaustive, day-long search reveals that the intelligence assessment was wrong and the vessel's cargo is entirely legitimate.[35] In the second, a ship that is in fact transporting a WMD to a densely populated port city is not boarded because the decision maker concludes that there is insufficient evidence. Surveillance of the vessel is later lost when it enters a crowded traffic lane, and the weapon is delivered and later detonated in the city. Those charged with responsibility for the decision in the OODA cycle must be prepared to determine which of the two erroneous outcomes poses the more serious risk (just as the criminal justice system did by adopting a "beyond a reasonable doubt" standard to minimize the chance of wrongly convicting a person of a crime). A false positive in a counterproliferation operation may require the interdicting state to issue an apology and provide appropriate compensation to the vessel inconvenienced. Losses that could result from a false negative might well be incalculable. As the U.S. *National Security Strategy* declares:

[Risk] managers must be successful . . . every time, while the malefactors who would unleash [WMD] need be successful only once.

> The greater the threat, the greater is the risk of inaction—and the more compelling the case for taking anticipatory action to defend ourselves, even if uncertainty remains as to the time and place of the enemy's attack. To forestall or prevent such hostile attacks by our adversaries, the United States will, if necessary, act preemptively.[36]

The False Positive Error. Statistical decision theory recognizes two types of inferential error. The false positive, or *Type I,* error refers to a conclusion that a condition exists or a proposition is true when in fact the condition does not exist

or the proposition is not true. Prewar intelligence estimates of Iraq's WMD, characterized on one occasion as a "slam dunk," present a recent and notorious example of such a "false positive" error, as was the less well publicized four-day boarding of the container ship *Palermo Senator* in 2003.[37]

A 1993 incident involving the Chinese containership *Yin He* and the 1998 cruise missile strike on a Sudanese chemical plant in Al Shifa are cited as examples of the kind of international embarrassment the United States can expect to suffer by taking action based on a false-positive intelligence assessment.[38] The United States alleged that the *Yin He* was carrying chemical precursors that could be used to produce mustard and sarin nerve gases from China to Iran.[39] Secretary of State Warren Christopher publicly asserted that the intelligence on the *Yin He* was reliable. In fact, an American intelligence official went so far as to declare, "We know these chemicals are bound for Iran's chemical weapons plants, and it is a lot of tonnage, tens of tons."[40] China vehemently disputed the U.S. allegation, but it eventually agreed to a boarding of the vessel in a Saudi Arabian port. The inspection by Saudi officials, accompanied by American technical advisers, uncovered no trace of the precursors American intelligence officials had alleged were aboard. Beijing blasted the United States for acting like a "self-styled world cop."[41] Nevertheless, the United States refused to offer either an apology or compensation for the vessel's delay;[42] Washington asserted that it had "had sufficient credible evidence that those items were in the cargo."[43]

In the latter incident, the United States struck the Al Shifa plant in the belief, based on intelligence, that the plant was engaged in producing chemical warfare agents. Poststrike investigations revealed that the assessment was almost certainly wrong.

At most, decision makers who rely on a false positive assessment may be accused of being rash or alarmist and may be required to issue apologies or compensate the owner of a vessel or cargo. However, frequent or egregious actions taken on the basis of erroneous intelligence will eventually undermine public and partner-states' confidence in the program.[44] False positive errors can also demoralize members of the intelligence community and may cause them (and operational commanders) to be more cautious, more guarded, and less willing to pass on preliminary or tentative findings in the future.[45] Ironically, such wariness might lead to errors of the opposite kind, demonstrating the interdependence of errors caused by too much and too little caution. Finally, false positives, like false negatives, can educate would-be proliferators and transporters on the tactics and methods employed by counterproliferation forces, providing them with information useful in circumventing the regime's strengths and exploiting its weaknesses.

The False Negative Error. The false negative, or *Type II,* error is committed by concluding that a condition does not exist or that a proposition is not true when in fact the condition does exist or the proposition is true. For example, a provocative quarantine might be imposed around Cuba on the assumption that even if the situation escalates, Soviet troops on the island number only three thousand and that no nuclear weapons or missile delivery systems are available to them.[46] Or a hypothesis that a handful of Muslim extremists have enrolled in flying lessons in preparation for turning airliners into instruments of mass devastation might be erroneously dismissed as too far-fetched. At best, erroneous false negative decisions simply delay responsive action.[47] At worst, they may convince those with blind spots or a high tolerance for risk that it is safe to open the city's gates and wheel that massive wooden horse inside.

ACTING ON UNCERTAIN RISK ASSESSMENTS WHEN POSSESSION OF WMD IS AT STAKE

> *War is the realm of uncertainty; three-fourths of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty. A sensitive and discriminating judgment is called for.*
>
> CARL VON CLAUSEWITZ, *ON WAR*

Risk assessments help us categorize and quantify a risk, but they do not tell us what, if anything, to do about it.[48] That second question falls in the domain of risk management, which nearly always entails a policy judgment. Decisional "purists" will ground their decision on objective risk-management principles.[49] The purist's approach evaluates the various alternative courses of action applying decisional criteria that include an alternative's predicted effectiveness in producing the desired result and the cost of achieving that result in that fashion. Those who define their decisional criteria more broadly will also consider the public's likely reaction to the decision. Where the decision is a binary one—between interdicting a vessel and taking no action, where a subjective probability assessment indicates a risk that it is transporting WMD—the latter group will factor in the public's attitude toward risk. Put another way, these analysts will ask how cautious the public expects its national and homeland-security leadership to be.

The nation's reaction to the 11 September 2001 attacks and to the 9/11 Commission hearings and report suggest that as a nation the United States is risk averse, preferring the embarrassment of an occasional false positive to the potential horrors of a false negative. To the extent they were willing to accept errors of any kind, the majority of Americans appeared to demand that the risk of "false negatives" be minimized, if not eliminated, when the threat is to the

homeland.[50] Some would characterize their preference as one akin to the "precautionary approach" advocated by many environmentalists, wherein lack of certainty regarding a risk does not excuse failure to take avoiding action.[51] Two critical considerations are less clear, however. The first concerns the cost the public is willing to bear for a true precautionary approach to homeland security. That cost includes not only the financial costs of an enhanced security system but also possible criticism from abroad and encroachments on civil liberties. The second concerns the chronic tendency toward short-term thinking, what some derisively refer to as "strategic attention deficit disorder," perhaps coupled with what cognitive psychologists call the "availability heuristic"—the tendency to make judgments about the future based not upon a broad body of historical evidence but on recent, vivid events that skew perceptions. The cautionary preferences manifested in late 2001 or when the 9/11 Commission first denounced a collective "failure of imagination" may not reflect preferences five or ten years after the traumatic event.

In assessing the public's attitude toward risk and the consequences of error we must also be mindful of the political and media reaction to the most significant false positive error in recent history—the prewar intelligence assessments of Iraq's WMD program.[52] Like the pre-9/11 risk assessment of the homeland's vulnerability to large-scale terrorist attacks, they may be reduced for analytic purposes to an intelligence judgment that presented decision makers with two possible "truths": either Iraq was engaged in a clandestine program to produce WMD or it had abandoned its earlier design and production activities and disposed of its stockpiles. In this light a rational decision maker following accepted risk management principles would have to consider, among other things, the respective consequences of a false positive and a false negative error.[53] As Philip Bobbitt, former strategic planning director of the National Security Council, has argued, judgments regarding the consequences of an erroneous decision might actually cause a decision maker to pursue a course of action that is *not* based on the state of affairs analysts have concluded is the most probable.[54] Under accepted risk management principles, if a scenario with a lesser, but still significant, probability presents an overall risk that the decision maker deems unacceptable (as measured by the magnitude of the expected harm, discounted by the event's probability), the "correct" course may be to abate or at least reduce that risk. Bobbitt further warns that in judging a decision we must avoid "Parmenides' fallacy," which occurs when one assesses the correctness of a decision based solely on the state of affairs it produced, without comparing that state

The information demands of counter-proliferation forces will present a daunting challenge for the intelligence community.

of affairs to the outcomes that would have been produced if one of the alternative courses of action had been chosen.[55] One need not delve deeply into notions of efficient or proximate cause to understand that any given end state is the product of a multitude of causes and factors, many of which are not under the control of the decision maker.

Those charged with making and acting on national security decisions regarding weapons of mass destruction should never accept less than the best available intelligence; nonetheless, they must also be prepared to make timely decisions when that intelligence falls short of certainty. Excoriating the intelligence community or decision makers for committing false-positive errors even though they followed appropriate risk assessment and management methods risks driving them in the future to accept a higher risk of false negatives or at least to be more reluctant to take action on probable but uncertain intelligence assessments. Such tendencies would undermine a precautionary approach. The long-term political success of counterproliferation operations requires that both intelligence analysts and operations decision makers be candid with regard to uncertainties. An intelligence agency that represents an assessment on weapons of mass destruction as a "slam dunk" will find its credibility seriously questioned. For the same reason, the cost of error should not fall on the innocent shipowner. States conducting maritime interception operations must be prepared to compensate for any loss or damage caused by operations that turn out to be unwarranted.

NOTES

1. Adm. James D. Watkins, "The Maritime Strategy," Naval Institute *Proceedings* (January 1986), pp. 2, 6. See also Elliott Hurwitz, "Terrorists and Chemical/Biological Weapons," *Naval War College Review* 35, no. 3 (May–June 1982), pp. 36–40.
2. In describing intelligence activities in support of the maritime interception forces enforcing the Iraq sanctions, the doctrinal publication *Naval Intelligence* records, "U.S. maritime intelligence activities provided a wealth of intelligence derived from international shipping registers, vessel sightings, electronic intelligence, cryptologic reporting, open sources, satellite imagery, human intelligence, and aerial reconnaissance photographs. This information was collated, analyzed, and fused into intelligence products that were provided to naval operating forces. Complementing this intelligence with information from organic radar, cryptologic sensors, and other surveillance assets, the maritime interdiction patrol force intercepted more than 10,000 ships by the spring of 1991. This enabled the Gulf War coalition to maintain, in the words of General H. Norman Schwarzkopf, a 'steel wall around the waters leading to Iraq' that helped hasten the defeat of the Iraqis on the battlefield" (U.S. Navy Dept., *Naval Intelligence,* NDP-2 [Washington, D.C.: 30 September 1994], chap. 2).
3. U.S. State Dept., *Proliferation Security Initiative,* available at www.state.gov/t/isn/c10390.htm; Andrew C. Winner, "The Proliferation

Security Initiative: The New Face of Interdiction," *Washington Quarterly* 28 (Spring 2005), p. 129. For a discussion of the legal issues raised by the initiative, see Daniel H. Joyner, "The Proliferation Security Initiative: Nonproliferation, Counterproliferation, and International Law," *Yale Journal of International Law* 38 (Summer 2005), p. 537.

4. A list of all seventy-seven states that have participated in PSI is available at U.S. State Dept., *Proliferation Security Initiative*, available at www.state.gov/t/isn/71884.htm.

5. U.S. State Dept., *Proliferation Security Initiative: Statement of Interdiction Principles,* available at www.state.gov/t/isn/rls/fs/23764.htm.

6. The six states are Belize, Croatia, Cyprus, Liberia, Marshall Islands, and Panama.

7. UN Security Council Resolution 1540, UN Doc. S/RES/1540 (2004). The measures decided in Resolution 1540 were extended two years by Resolution 1673; UN Doc. S/RES/1673 (2006).

8. The Department of Defense defines "risk assessment" as "the identification and assessment of hazards." "Risk" is, in turn, the "probability and severity of loss, linked to hazards." U.S. Defense Dept., *Department of Defense Dictionary of Military and Associated Terms,* Joint Publication 1-02, www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf.

9. See Richard A. Posner, *Catastrophe: Risk and Response* (London: Oxford Univ. Press, 2004), pp. 120–22 (describing a "psychological asymmetry," which causes many to downplay low-probability/large-destructive-potential events, even when their expected costs are greater than some high-probability/lower-destructive-potential events). Judge Posner identifies a disturbing paradox in prevailing attitudes toward low-probability attacks: "A surprise attack is likelier to succeed when it has a *low antecedent possibility of success* and the attacker is weak, because on both counts the victim will discount the danger and because the range of possible low-probability attacks by weak adversaries is much greater than the range of possible high-probability attacks by strong ones" (page 93, emphasis added).

10. John Lewis Gaddis, *Surprise, Security, and the American Experience* (Cambridge, Mass.: Harvard Univ. Press, 2004), p. 75 (defenders must anticipate all contingencies; terrorists need provide only one).

11. White House, *National Strategy to Combat Weapons of Mass Destruction* (Washington, D.C.: December 2002) [hereafter NS-CWMD], p. 5, available at www.whitehouse.gov/news/releases/2002/12/WMDStrategy.pdf.

12. Ibid., pp. 5–6.

13. White House, *National Security Presidential Directive 41/Homeland Security Presidential Security Directive 13,* NSPD-41/HSPD-13 (Washington, D.C.: 21 December 2004), pp. 5–6, available at www.fas.org/irp/offdocs/nspd/nspd41.pdf.

14. *Global Maritime Intelligence Integration Plan for the National Strategy for Maritime Security* (Washington, D.C.: October 2005). The GMII Plan was one of the eight plans promulgated in support of the National Strategy for Maritime Security. The plan's designation as "for official use only" precludes a discussion of its contents here. See also James R. Holmes and Andrew C. Winner, "WMD: Interdicting the Gravest Danger," Naval Institute *Proceedings* (February 2005), pp. 72, 74.

15. *Maritime Operational Threat Response Plan for the National Strategy for Maritime Security* (Washington, D.C.: October 2005); MOTR Protocols, 4 April 2006. The MOTR Plan's designation as "for official use only" precludes a discussion of its contents here.

16. It must be acknowledged that many interdictions of vessels engaged in human and narcotics trafficking are based solely on what some would call "organic," self-generated intelligence—or, simply being at the right place at the right time. Such techniques are inefficient and will rarely be relevant to WMD interception operations.

17. The author of the observe-orient-decide-act (OODA) cycle concept was Col. John Boyd, U.S. Air Force.

18. Not considered here are the equally important applications of intelligence to WMD defense, reducing infrastructure vulnerability, and response and mitigation planning, each of which is a recognized element in the "counterproliferation" pillars of the NS-CWMD, p. 3.

19. "Indications and warnings" intelligence refers to intelligence activities intended to detect

and report time-sensitive intelligence information on foreign developments that could involve a threat to the United States or allied/coalition military, political, or economic interests or to American citizens abroad. It includes forewarning of: enemy actions or intentions; the imminence of hostilities; insurgency; nuclear/non-nuclear attack on the United States, its overseas forces, or allied/coalition nations; hostile reactions to U.S. reconnaissance activities; terrorist attacks; and other, similar events.

20. Dual-use materials are those that have both legitimate (peaceful) and illegitimate (weapons-related) applications.

21. Phil Williams, "Intelligence and Nuclear Proliferation: Understanding and Probing Complexity," *Strategic Insights* 5 (July 2006), p. 1, available at www.ccc.nps.navy.mil/si/2006/Jul/williamsJul06.pdf. ("The focus is now in large part on proliferation networks. These networks range from criminals trafficking nuclear materials from the former Soviet Union through the Caucasus, Balkans, and Central Asia, to the A. Q. Kahn network, which was, in effect, a privatized nuclear diffusion network.")

22. See John S. Hammond et al., *Smart Choices* (Boston: Harvard Business School Press, 1999), p. 209. Cognitive errors may result from a variety of causes, including experience bias, selective perception, wishful thinking, and overconfidence.

23. U.S. Defense Dept., *National Military Strategy to Combat Weapons of Mass Destruction* (Washington, D.C.: Joint Staff, 13 February 2006), p. 21.

24. See Peter F. Drucker, *The Essential Drucker* (New York: Collins, 2001), p. 251. ("A decision is a judgment. It is a choice between alternatives. It is rarely a choice between right and wrong. It is at best a choice between 'almost right' and 'probably wrong.'")

25. 1982 UN Convention on the Law of the Sea, art. 110 ("reasonable ground for suspecting" basis for right of visit); 2005 Protocol to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation, art. 8 *bis* ("reasonable ground for believing"); *Proliferation Security Initiative: Statement of Interdiction Principles,* paras. 4(b) ("good cause shown") and 4(d) ("reasonably suspected of").

26. Wade Boese and Miles Pomper, "The Proliferation Security Initiative: An Interview with John Bolton," *Arms Control Today* (11 December 2003), p. 37, available at www.armscontrol.org/act/2003_12/PSI.asp.

27. The U.S. Department of State provided a thumbnail sketch of eleven "successful efforts" by the PSI partners between August 2004 and May 2005, mostly involving ballistic missile and nuclear technology shipments bound for Iran. The report does not indicate whether any of the interdictions took place at sea. See Robert Joseph, Undersecretary of State for Arms Control and International Security, "Transforming our Counterproliferation Efforts in the Asia Region" (remarks to the Institute of Defense and Strategic Studies, 15 August 2005, Singapore), available at www.state.gov/t/us/rm/51129.htm.

28. Commonly cited intelligence "failures" in nonproliferation monitoring efforts include the surprise 1998 nuclear tests in South Asia and, for some, the nuclear weapons program in North Korea.

29. See Nuclear Threat Initiative, *North Korea: U.S., Spanish Forces Seize Scud Shipment,* 11 December 2002, available at www.nti.org/d_newswire/issues//2002/12/11/7p.html.

30. Thus, the intelligence community's assessment can be said to be accurate but incomplete. Nevertheless, decision makers decided to go forward with the interdiction, exercising the internationally recognized "right of visit." See 1982 UN Convention on the Law of the Sea, art. 110.

31. Kenneth Rogoff, "The Cost of Living Dangerously: Can the Global Economy Absorb the Expenses of Fighting Terrorism?" *Foreign Policy* (November/December 2004), p. 70.

32. White House, *Bush Administration Actions Consistent with 9/11 Recommendations* (Washington, D.C.: 30 July 2004), available at www.whitehouse.gov/news/releases/2004/07/20040730-18.html.

33. "Israelis Say They Seized Palestinian Arms Ship," CNN.com, 4 January 2002. The freighter *Karine A* was intercepted by the Israel Defense Forces in the Red Sea on 3 January 2002 carrying Katyusha rockets, mortars,

sniper rifles, bullets, antitank mines, antitank missiles, and explosives. Although the ship was carrying conventional weapons, not WMD, when the IDF interdicted it en route to its Palestinian buyers, the operation stands out prominently in the annals of successful applications of intelligence to maritime interdiction operations.

34. See Congressional Research Service, *Port and Maritime Security: Background Issues for Congress,* CRS Report RL31733 (Washington, D.C.: updated 27 May 2005), 17. ("Perfect maritime security can only be achieved by shutting down the transportation system.") The quest for perfection raises what some refer to as the "asymptotic dilemma"—that is, increasing security investments run up against the iron law of diminishing returns: the result approaches, but never quite achieves, perfect security.

35. It is rare indeed to hear an intelligence assessment characterized as a "slam dunk." It will no doubt be rarer still in the coming years. It is far more common for such assessments to be cast in terms of probabilities. Where an estimate concludes that it is "probable" that a given ship is carrying a cargo of WMD concern, a boarding that turns up nothing does not render the assessment "wrong." It had, after all, been couched in terms of a probability of less than 100 percent.

36. White House, *The National Security Strategy of the United States of America* (Washington, D.C.: 17 September 2002), p. 15, available at www.whitehouse.gov/nsc/nss.pdf.

37. The German-flag containership *Palermo Senator* was delayed for four days while the Coast Guard and other federal agencies conducted a boarding to determine the source of radiation emissions from the vessel's cargo. Ultimately, it was determined that the radiation was being emitted from a cargo of clay tiles. The Coast Guard was later criticized for relying on obsolete radiation detection equipment. Ronald Smothers, "Ship's Radiation Is Traced to Harmless Tiles," *New York Times,* 14 September 2003, p. A-7.

38. Jason D. Ellis and Geoffrey D. Kiefer, *Combating Proliferation: Strategic Intelligence and Security Policy* (Baltimore, Md.: Johns Hopkins Univ. Press, 2004), pp. 149–53, 156–66.

39. An officer from U.S. Central Command asserted that the vessel was transporting thiodiglycol and thionyl chloride to Iran (ibid.). Both chemicals are dual-use products.

40. Ibid.

41. Ibid., citing Patrick E. Tyler, "No Chemicals aboard China Ship," *New York Times,* 6 September 1993, p. A4.

42. Rone Tempest, "China Demands Apology: Search of Ship Fails to Find Warfare Chemicals," *Chicago Sun Times,* 6 September 1993, p. 10.

43. Ellis and Kiefer, *Combating Proliferation,* p. 152. One possible explanation why no chemicals were found during the boarding in Saudi Arabia was that they had been dumped over the side before the ship arrived.

44. False-positive judgments in other contexts may result in devastating consequences, as did the conclusions drawn by the Soviet Union in 1983 when it shot down Korean Air Lines flight 007, and by USS *Vincennes* in 1988 that an approaching aircraft was hostile when in fact it was an Iranian passenger jet (U.S. State Dept., *Cumulative Digest of United States Practice in International Law, 1981–88, vol. 2* [Washington, D.C.: U.S. Government Printing Office, 1994], pp. 2340–49; and David Linnan, "Iran Air Flight 655 and Beyond: Mistaken Self-Defense and State Responsibility," *Yale Journal of International Law* 16 [1991], p. 245). The 1983 KAL 007 incident resulted in the deaths of all 269 on board (see *Cumulative Digest, 1981–88,* vol. 2, pp. 2349–50). The *Vincennes* incident resulted in the deaths of all 290 passengers on board the Iranian airliner. The *Vincennes* incident came on the heels of a missile attack on the USS *Stark* the year before. Thirty-seven *Stark* crewmembers were killed when two Exocet antiship missiles fired by an Iraqi F-1 Mirage jet struck the frigate. Iraq claimed the pilot had mistaken the *Stark,* a frigate, for an Iranian oil tanker (*Cumulative Digest,* vol. 2, pp. 2337–40).

45. In a rare public speech explaining some of the intelligence failures regarding Iraq's WMD programs, former CIA director William Tenet warned that "we cannot afford an environment to develop where analysts are afraid to make a call, where judgments are held back because analysts fear they will be wrong."

Remarks as prepared for delivery by Director of Central Intelligence George J. Tenet at Georgetown University on 5 February 2004, available at www.cia.gov/cia/public_affairs/speeches/2004/tenet_georgetownspeech_02052004.html.

46. Decades after the Cuban missile crisis ended, the United States learned that the Soviet forces had actually totaled approximately forty thousand men (twenty times the estimate) and that tactical nuclear devices—nine *Luna* missiles and six launchers—were already on the island.

47. See Richard K. Betts, "Analysis, War, and Decision: Why Intelligence Failures Are Inevitable," in *The Art and Practice of Military Strategy* (Washington, D.C.: National Defense Univ. Press, 1984), pp. 378–79 (noting that "making warning systems more sensitive reduces the risk of surprise, but increases the risk of false alarms, which in turn reduces sensitivity").

48. The epigraph is taken from Michael Howard's and Peter Paret's edition and translation (Princeton, N.J.: Princeton Univ. Press 1984), p. 101.

49. The Department of Defense defines risk management as "the process of identifying, assessing, and controlling, risks arising from operational factors and making decisions that balance risk cost with mission benefits." Joint Publication 1-02.

50. The central importance of popular support for national security measures has long been acknowledged. See Clausewitz, *On War,* book 1, chap. 2 (identifying the "will" of the enemy as one of three factors critical to the outcome) and book 8, chap. 4 (identifying public opinion as a potential center of gravity to be defended or exploited in war). Similarly, in approaching an enemy, Sun Tzu advocated, "When he is united, divide him." Sun Tzu, *The Art of War,* trans. Samuel B. Griffith (London: Oxford Univ. Press, 1963), p. 69.

51. Although definitions of the precautionary approach or precautionary principle vary, at a minimum it stands for the proposition that uncertainty as to whether a course of action will cause harm (usually to the environment) should not be an excuse for failing to take action.

52. Some of the same questions have been raised about some of the intelligence assessments of Iran's nuclear program and that nation's role in the 2006 Hezbollah conflict with Israel.

53. In a response to the leading investigations into the British and American prewar WMD assessments, Professor Philip Bobbitt reminds the reader that the UN inspectors had been "fooled" by Saddam's claim in 1995 that he had abandoned his program (Philip Bobbitt, "How Proof Became a Burden: Saddam's Intentions Had to Be Part of the Spook's Judgment Call," *Guardian,* 28 October 2004). They realized their mistake only after Saddam's son-in-law, Hussein Kamal, defected and revealed the details of a new clandestine WMD program.

54. See Philip Bobbitt, "Seeing the Futures," *New York Times,* 8 December 2003.

55. Philip Bobbitt, "Today's War against Tomorrow's Iraq," *New York Times,* 10 March 2003. The relevant question would therefore not be whether we are better off or safer today than we were before an action was taken, but whether we are better off or safer than we would have been had we pursued an alternative course of action, including taking no action.

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CHINA'S FUTURE NUCLEAR SUBMARINE FORCE

Insights from Chinese Writings

Andrew S. Erickson and Lyle J. Goldstein

On 26 October 2006, a Chinese Song-class attack submarine reportedly surfaced in close proximity to the USS *Kitty Hawk* carrier battle group in international waters near Okinawa.[1] This was not the first time that Chinese submarines have attracted extensive media attention. The advent of the Yuan-class SSK in mid-2004 seems to have had a major impact in transforming the assessments of Western naval analysts, and also of the broader community of analysts studying China's military modernization.

In order to grasp the energy that China is now committing to undersea warfare, consider that during 2002–2004 China's navy launched thirteen submarines while simultaneously undertaking the purchase of submarines from Russia on an unprecedented scale.[2] Indeed, China commissioned thirty-one new submarines between 1995 and 2005.[3] Given this rapid evolution, appraisals of China's capability to field competent and lethal diesel submarines in the littorals have slowly changed from ridicule to grudging respect of late. China's potential for complex technological development is finally being taken seriously abroad.

Whereas the Yuan's debut allegedly surprised Western analysts, the emergence of China's 093 SSN and 094 SSBN has been anticipated for some time. Nevertheless, these programs remain shrouded in mystery, and there is little consensus regarding their operational and strategic significance. In the broadest terms, it can be said that a successful 093 program will significantly enlarge the scope of Chinese submarine operations, perhaps ultimately serving as the cornerstone of a genuine blue-water navy. The 094 could take the survivability of China's nuclear deterrent to a new level, potentially enabling more aggressive posturing by Beijing in a crisis. Moreover, these platforms are entering the PLA Navy (PLAN) at a

time when reductions are projected to occur in the U.S. Navy submarine force;[4] that fact was duly noted by a senior PLAN strategist recently in one of China's premier naval journals.[5]

The PLA is notoriously opaque, posing major challenges for Western analysts. Official statements regarding the intentions of China's future nuclear submarine force are all but nonexistent.[6] Nevertheless, one of the most significant statements is contained in the 2004 PLA defense white paper's discussion of naval operations. Enhancing "nuclear counterattacks" capability was described as one of the PLAN's most important missions. Moreover, Chinese unofficial writings on defense issues are voluminous and growing more so. Among dozens of journals, magazines, and newspapers devoted to military affairs (not to mention hundreds of more technically oriented publications), at least five focus specifically on naval warfare.[7] This article will survey the available Chinese writings concerning the PLAN's future nuclear submarine force.

Two caveats are in order. First, this article seeks to present the views of Chinese analysts but does not render final judgment on the validity of those views. Such an approach will better acquaint a broader community of naval analysts with the essential primary source materials. Second, this is not a comprehensive study but rather a preliminary research probe. These data need to be treated with a certain amount of caution, and follow-on studies are necessary before major conclusions can be drawn.

The article begins with a brief survey of relevant elements from Chinese writings concerning the PLAN's nuclear submarine history. A second section examines how PLAN analysts appraise developments among foreign nuclear submarine forces: What lessons do they glean from these other experiences? The third section concerns mission imperatives: What strategic and operational objectives are China's 093 and 094 submarines designed to achieve? The potential capabilities of these submarines are addressed in this article's fourth and final section.

HISTORICAL PERSPECTIVES

Chinese naval writings reveal an intense pride regarding Beijing's naval nuclear-propulsion program. These writings, in the "glorious genre," as it were, are well documented in John Wilson Lewis and Xue Litai's groundbreaking and authoritative classic *China's Strategic Seapower*.[8] This article will not attempt to examine Chinese writings to check for consistency with the conclusions in the detailed study by Lewis and Xue (though this is a worthwhile project and should be undertaken, given the wide variety of new Chinese secondary source data). Rather, this analysis highlights several important trends in contemporary Chinese discussions of the first-generation nuclear submarines, in order to assess the prospects for the next generation.

In his recent autobiography, published in Chinese by the official PLA press in 2004, Admiral Liu Huaqing provides a unique level of detail concerning the foundation for China's contemporary development of nuclear submarines.[9] Credited with an instrumental role in modernizing China's navy, Admiral Liu presided over a steady improvement and expansion of China's submarine force as both commander of the PLAN (1982–88) and vice chairman of the Central Military Commission (1989–97). In 1984, Admiral Liu emphasized: "We must place importance on submarines at all times. . . . Nuclear-powered submarines should be further improved and used as a strategic task force."[10] Liu viewed nuclear submarines not only as "a deterrent force of the nation" but also as "an expression of our country's overall strength." As commander of the PLA Navy, Liu emphasizes, "I paid exceptional attention to the practical work of developing nuclear-powered submarines. From 1982 through 1988, I organized various experiments and training sessions in this regard. I also considered developing a second generation of nuclear-powered submarines."[11] PLAN emphasis on submarine development continues today. As the 2005 edition of the PLA's first authoritative English-language volume on strategy emphasizes, "Stealth warships and new-style submarines represent the modern sea battle platforms."[12]

Chinese naval strategists evidently prioritize analyses of the American, French, and especially Russian nuclear submarine fleets.

Chinese periodicals elucidate more recent factors shaping Chinese nuclear submarine force development. One important 2004 Chinese survey of China's emerging nuclear submarine program, in the journal 世界航空航天博览 *(World Aerospace Digest)*, reviews a series of inadequacies in China's submarine force that became starkly evident during the 1990s. According to this report, the 1993 *Yin He* incident was an important event for crystallizing the People's Republic of China (PRC)'s commitment to a new generation of nuclear attack submarines. Thus, when the Chinese freighter was inspected in Saudi Arabia before proceeding to Iran, the PRC high command was apparently "extremely furious, but had no recourse" [怒火万分却毫无办法]. At that point, the leadership redoubled its efforts to build a "capable and superior nuclear attack submarine that could protect China's shipping in distant seas." The author notes that "at present, our country only has five Han-class nuclear attack submarines. . . . This number is insufficient and the capabilities are backward. . . . Thus, they are inadequate to cope with the requirements of the new strategic situation."[13]

The 2004 memoirs of former PLAN commander Admiral Liu appear to lend some credence to this sequence of events as they state that the Central Military Commission began development work on a "new generation nuclear submarine,"

probably the 093, in 1994.[14] "In 1990 the last [of the original five Han-class SSNs] was launched," Liu recalls:

> After I briefed President Jiang Zemin on this, he decided to personally inspect the launch of this submarine. At the time of inspection, he said resolutely: "Development of nuclear-powered submarines cannot be discontinued." On 29 May 1992, when forwarding the Navy's report on building nuclear-powered submarine units to President Jiang, I particularly stressed the need to continually develop scientific research and perform successful safety work. President Jiang wrote a note on the report, giving his important instructions on this matter. Based on his instructions, in the course of developing nuclear-powered submarines, we formed a seamless and effective nuclear safety mechanism by drawing on the experience of foreign countries while taking our practical situation into account. The mechanism included regulations and rules, technological controls, and supervisory and examination measures. In 1994, in compliance with President Jiang's instructions, the Central Military Commission and its Special Committee adopted a decision to start developing a new generation of nuclear-powered submarines. Seeing that there were qualified personnel to carry on the cause and that new types of submarines would continue to be developed, I felt relieved.[15]

The above analysis in 世界航空航天博览 *(World Aerospace Digest)*, however, does cut against what appears to be conventional wisdom in China's naval literature, which tends to credit China's Han submarines with a significant role in the 1996 Taiwan Strait crisis. Thus, one report states that in mid-March 1996, "U.S. military satellites were unable to detect the position of [certain] Chinese nuclear submarines; it was as if they . . . had vanished." This narrative continues, "The U.S. carrier battle groups were unable to cope with the hidden, mobile, high-speed, undersea" threat posed by the Chinese nuclear submarines, and thus "were unable to approach the sea area within 200 nautical miles of Taiwan." Implying some uncertainty on this issue, the author asks, "Why did the U.S. carrier group suddenly change its original plan? Was it that they feared China's nuclear submarines?"[16] Another PRC report also alleges that American military satellites lost track of China's SSNs and that the U.S. Navy was forced to retreat when confronted by the "massive threat of China's nuclear submarine force."[17] Given the Han-class SSN's reputation as a noisy vessel, these statements might well be viewed with suspicion—and, indeed, they are not reproduced here to imply their truth.[18] Nonetheless, these Chinese conjectures are related above because they could be indicative of the context within which 093 and 094 development has occurred.

Most China scholars agree that the intellectual space for debate and disagreement in China is, and has for some time been, rather wide. In this respect, the analysis from 世界航空航天博览 *(World Aerospace Digest)* is once again noteworthy. While the vast majority of PLAN writings concerning the single Type

092 Xia SSBN heap praise on China's technical achievements, this analysis breaks new ground (in the PRC context) by drawing attention to the Xia's inadequacies. It notes candidly, "The Xia-class actually is not a genuine deterrent capability." Noting the symbolic value of the vessel, the author explains that the Xia was important to answer the question of "having or not having" a nuclear submarine but then enumerates the platform's numerous problems: high noise levels and radiation leakage, not to mention the short range of the single warhead carried by China's first-generation submarine-launched ballistic missile (SLBM), the Julang-1. Forced to approach the enemy's shores and vulnerable to enemy ASW, the Xia "cannot possibly serve as a viable nuclear, second-strike force." It is no wonder, the author explains, that China did not opt to build a "whole batch" of these problematic submarines.[19] No doubt, such candid observations suggest that Chinese strategists do not necessarily overestimate the capabilities of their first-generation nuclear submarines, perhaps adding additional impetus to the building of a second generation.

Even more important than the observations concerning history cited above, however, are the views of China's "founding fathers" of naval nuclear propulsion. Two of these founding fathers recently offered interviews to the press in which they expounded on the outlook for nuclear submarines in naval warfare. First, Peng Shilu, designer of China's first naval nuclear reactor, was interviewed in 国际展望 *(World Outlook)* in 2002. Although Peng drafted his first reactor designs more than three decades ago, this engineer is unwavering in his commitment: "In the First World War, the battleship was the most important vessel; and in the Second World War, it was the aircraft carrier. [But in] the future, I believe the most critical naval asset will be the nuclear submarine." For Peng, the SSN's primary strengths are high power, high speed, large carrying capacity for equipment and personnel, and extended deployment capability, as well as excellent concealment possibilities. According to Peng, "Nuclear submarines can go anywhere. . . . [T]heir scope of operations is vast [and they are therefore] most appropriate to meet the security requirements of a great power."[20] Drawing on another interview with Peng Shilu, an analysis published in 2005 by China's Central Party School Press concludes: "[Such is] the huge superiority of nuclear propulsion [that it] simply cannot be compared with conventional propulsion."[21]

An interview with the Han submarine's chief designer, Huang Xuhua, which appeared in the military periodical 兵器知识 *(Ordnance Knowledge)* in 2000 is more explicit regarding some of the dilemmas confronting China's naval nuclear propulsion program. Huang discusses the conundrum for naval strategists posed by the option to choose between development of AIP (air-independent propulsion) technology and nuclear propulsion. The interviewer asks Huang directly whether it makes sense to continue with nuclear propulsion development, given

recent worldwide advances in AIP technology. Huang points out that nuclear propulsion offers far more power, is likely much safer and more reliable, and enables submarines to stay submerged for longer periods of time. Taking Sweden's *Gotland*-class AIP-equipped submarine as an example, he suggests that this submarine's two weeks of submerged operations at an average speed of four knots might not "be adequate for combat requirements." Huang accepts that certain bathymetric conditions are ideal for AIP-equipped diesel submarines, such as those prevailing in the Baltic Sea (a small, shallow body of water). For Sweden, therefore, Huang says, "It is scientifically logical to select this type of submarine." The implicit argument, however, is that China confronts rather different, if not wholly unrelated, maritime challenges and requirements.

In making an argument for Chinese nuclear submarine development, Huang draws a parallel to Britain's deployment of SSNs during the Falklands War. He notes that their high speed was critical to their success in deploying to a distant theater in a timely fashion. Indeed, other PRC naval analysts have been impressed by the sea-control capabilities that British SSNs afforded during this scenario—the most intense naval combat since the Second World War.[22] Huang then makes the observation that such high-speed submarines are critical for a nation, such as the United Kingdom, that—in contrast to the United States—no longer possesses a global network of bases.[23] For the PRC, which takes great pride in its lack of overseas bases, this would appear to be an argument for SSNs serving as the basis of a blue-water navy with considerable reach. Indeed, writing in China's most prestigious military publication, 中国军事科学 *(China Military Science)*, PLAN Senior Captain Xu Qi goes so far as to state that China's "navy must . . . unceasingly move toward [the posture of] a 'blue-water navy' [and] expand the scope of maritime strategic defense."[24]

COMPARATIVE PERSPECTIVES

The Falklands War is hardly the only naval campaign of interest to Chinese strategists, as PRC researchers produce an extraordinary volume of analyses concerned with modern naval warfare—often generated by carefully dissecting foreign secondary sources. There is a large appetite for information regarding the United Kingdom's history of nuclear submarine operations and even that of such nascent nuclear submarine powers as India.[25] However, Chinese naval strategists evidently prioritize analyses of the American, French, and especially Russian nuclear submarine fleets.

From a very early stage, PRC engineers demonstrated concretely that they were not averse to adopting American designs, as they conspicuously embraced the "teardrop" configuration for their first generation of nuclear submarines, in contrast to then-current Soviet designs.[26] Today the "threat" component is also evident

in PLAN analyses of the U.S. submarine force. Chinese researchers display intimate familiarity with all U.S. Navy submarine force programs, including the most cutting-edge platforms, such as *Seawolf* and *Virginia*.[27] Additionally, there is great interest in the ongoing transformation of some SSBNs into SSGNs.[28] Ample focus is also devoted to the capabilities of the *Los Angeles* class as the backbone of the U.S. Navy submarine force.[29] Beyond platforms and programs, there is also a keen interest in America's industrial organization for nuclear submarine production and maintenance.[30]

Chinese analysts closely monitor French nuclear submarine development as well.[31] They have paid particular attention to the manner in which France strives to maximize the effectiveness of its second-tier nuclear submarine force.[32] The September 2005 issue of 舰船知识 *(Naval and Merchant Ships)* features a lengthy report, apparently by a Chinese naval officer studying in France who has made several visits to French nuclear submarines based in Brest. This report makes note of numerous details, from the vast support network at the base to France's inclination to support a high quality of life aboard its nuclear vessels. Concerning the value of France's SSBN force, which is noted to constitute "80% of France's nuclear weaponry," the author quotes a French military expert as saying, "France's SSBNs ensure national security, carry out strategic nuclear deterrence and [have] basic power for independent national defense." Other issues highlighted in this report include personnel practices (e.g., age limitations, two crews per submarine), operations cycles (a two/two/two pattern for SSBNs that matches other Chinese discussions—see below), command and control arrangements, quieting technologies, and the small size of certain classes of French SSNs.[33]

It is with the Russian nuclear submarine force, however, that the Chinese navy feels the greatest affinity. This is not surprising and springs from historical, strategic, and perhaps even organizational-cultural affinities that appear to have been cemented since the passing of Sino-Soviet enmity in the late 1980s. Chinese analysts are well aware of the crisis that the Russian nuclear submarine force has suffered in recent years. They have written extensively on the *Kursk* tragedy and other accidents.[34] For instance, one source has documented the great embarrassment suffered during an SLBM test failure that was witnessed directly by Russian president Vladimir Putin in early 2004.[35] Chinese analysts note the vastly decreased building rate for Soviet nuclear submarines and voice concern lest the legacy force be insufficient to contend with [抗衡] the United States.[36]

Nevertheless, respect for Russian nuclear submarine achievements has not diminished significantly.[37] A review of Soviet naval development that appeared in 中国军事科学 *(China Military Science)* in 1999 extolled the virtues of nuclear submarines: "Relying on nuclear submarines, the Soviet Union rapidly overcame the unfavorable geostrategic situation, giving the USSR an ocean going navy with

offensive capability."[38] Perhaps reflecting on internal debates in China regarding naval modernization, the author also described how the Russian naval development encountered a major obstacle from a faction adhering to the notion that "navies have no use in the nuclear age" [核时代海军无用论].

Reflecting on today's Russian navy, 当代海军 *(Modern Navy)* lavished praise on the capabilities of a refurbished Typhoon-class SSBN, *Dmitry Donskoy*, that was re-launched in 2002;[39] it also hailed the 2001 launch of an Akula-class SSN, *Gepard*, which is described as the world's quietest nuclear submarine. The latter report also noted that *Gepard* has twenty-four nuclear-armed cruise missiles.[40] In a "war game" (of unknown origin) modeling a Russian-Japanese naval conflict, which was reported on in considerable detail in the October and November 2002 issues of 舰船知识 *(Naval and Merchant Ships)*, the Russian nuclear submarine force overcame Japan's ASW forces and inflicted grave losses (thirteen ships sunk) on the Japanese navy.[41] This would appear to be a subtle argument that China also requires a substantial fleet of SSNs.

Chinese unofficial writings on defense issues are voluminous and growing more so.

In Chinese naval periodicals, the affinity with the Russian nuclear submarine force is manifested by vast coverage of the minutest details of historical and contemporary platforms. In 2004–2005, for example, the journal 舰船知识 *(Naval and Merchant Ships)* carried ten-to-fifteen-page special features, each devoted to outlining the development of a single class, such as the Victor, Delta, Oscar, or Alpha, complete with photo essays and detailed line drawings.[42] These features are suggestive of the volumes of data that have been made available over the last decade from the Russian side and, simultaneously, the voracious appetite for such information within China's naval studies community. Among such descriptions, perhaps no Russian submarine commands as much respect and interest as the massive Typhoon. Chinese analysts are captivated not only by this vessel's gargantuan proportions but also by the efficiency of its reactors, its impressive quieting characteristics, the attention to crew living standards, and its command and control equipment and procedures.[43] Evidently Chinese naval analysts appear to comprehend the strategic significance of a platform that could strike adversary targets from the "Russian-dominated Barents and Okhotsk seas."[44]

Western analysts have followed Russian arms transfers to China with an all-consuming interest. But the above discussions imply that one should not underestimate the transfer of "software" and expertise that has occurred in parallel with that of the hardware. The true dimensions of these intellectual transfers remain unknown.

MISSION IMPERATIVES

PRC writings concerning nuclear submarines do not hide the symbolic role of these vessels. One, for example, remarks on the precise correlation between membership in the UN Security Council and the development of nuclear submarines.[45] Indeed, it appears to be conventional wisdom in the PRC that nuclear submarines represent one of China's clearest claims to status as a great power [大国].[46] In 1989, after China's successful test of the JL-1 SLBM, Admiral Liu, then vice chairman of the Central Military Commission, stated,

> Chairman Mao said that "we will build a nuclear submarine even if it takes 10,000 years." . . . Our nuclear submarine [and its] stealthy nuclear missile both succeeded. This has [had] strong international repercussions. As Comrade Deng Xiaoping has said, if we did not have atomic bombs, missiles, [and] satellites, then we would not [enjoy] our present international status, and could not shape international great triangle relations [as a balancer to the Soviet Union]. Developing strategic nuclear weapons has therefore [had] great strategic significance for the nation.[47]

Beyond symbolism, however, what are the missions that Chinese strategists envision for the second generation of PLAN nuclear submarines?

In general, nuclear submarines are credited with having significant advantages over conventional submarines: "a large cruising radius, strong self-power [i.e., electrical power supply], high underwater speed, great diving depth, [relative] quietness and large weapons carrying capacity."[48] Perceived advantages of conventional submarines include "small volume, low noise, low cost, and mobility."[49] Underscoring the cost differential, an anonymous PLAN officer is cited as warning, "The price of one nuclear submarine can buy several, even more than ten, conventional submarines. . . . As a developing country, our nation's military budget is still quite low, and thus the size of the navy's nuclear submarine fleet can only be maintained at a basic scale" [基本规模].[50]

In 1989 Admiral Liu declared, "I believe that there are two issues in developing nuclear submarines: one is the development of SSBNs, and one is the development of SSNs. Both types of nuclear submarines should be developed, especially SSNs. Along with technological development, enemy ASW power has strengthened. Originally, using conventional submarines was sufficient to accomplish [our] missions, but now that has become problematic, [so] we must develop SSNs."[51]

To understand what strategic roles the 093 submarine might undertake, it is essential to return to the discussion initiated by both Peng Shilu and Huang Xuhua in the first part of this article concerning the particular tactical and operational advantages of nuclear submarines. Indeed, the sophistication of PLA thinking on these issues is underlined by Huang's analysis of the different roles

played by SSNs for each side during the Cold War. For the Americans, he says, they were a vital element of "global attack strategy" (全球进攻战略). For the Soviets, by contrast, their roles were to stalk enemy carrier battle groups, as well as to defend Soviet ballistic missile submarines.[52] Concurring with Peng and Huang, a third analysis from 国防 *(National Defense)* enumerates further advantages of nuclear submarines by emphasizing the all-important factor of the SSN's impressive power supply. Not to be underestimated, this supply of power can vastly improve the crew's quality of life (e.g., by providing for strong air conditioning) and support electronic combat systems. In terms of combat performance, it is said that SSNs can employ their speed to foil ASW attack and are built solidly to absorb battle damage.[53]

A consistent theme in PRC writings concerning SSNs involves their ability to undertake long-range missions of extended duration. Consistent with the analysis above that described the 1993 *Yin He* incident as lending significant impetus for the 093 program, a recent discussion of China's nuclear submarine force in 舰船知识 *(Naval and Merchant Ships)* refers to the enormous growth in China's maritime trade as a factor in shaping China's emerging nuclear submarine strategy.[54] Likewise, another article from 现代舰船 *(Modern Ships)* on PRC submarine strategy suggests, "Submarines are the PLAN's main long-distance sea force. . . . Protecting China's sea lines of communication has become an important aspect of maritime security. This is an important new mission for the PLAN."[55] If nuclear submarines can "break through the island chain blockade" [突破岛链封锁], they can conduct long-distance operations without hindrance from the enemy's airborne ASW. Nuclear submarines are said to be far superior to diesel-powered submarines in combat situations in which air cover is lacking—a recognized vulnerability of the PLAN in distant operations. But overall, there is a strong emphasis on the imperative for Chinese nuclear submarines to function in a joint environment, thereby complementing other PLA strengths.[56]

Nevertheless, these same analyses also exhibit some conservatism—for example, suggesting explicitly that China's new nuclear submarines will not operate beyond China's "second island chain" (running from the Japanese archipelago south to the Bonin and Marianas Islands and finally to the Palau group).[57] Indeed, nuclear submarines are also said to be critical in the struggle to establish sea control [制海权] in the littoral regions and in China's neighboring seas. The linkage between the 093 program and the Taiwan issue (as suggested above) is fairly clear: "In order to guarantee the required national defense strength and to safeguard the completion of national unification and to prevent 'Taiwan independence,' over the past few years, China has increased indigenous production of new conventional *and* nuclear submarines" (emphasis added).[58] There is not only an acceleration of the building rate but also a change in the pattern of submarine

development: "China's construction of a new generation of nuclear-powered attack submarines breaks with past practice, in which China would first build one vessel, debug it repeatedly, and then begin small batch production. In this case, work on the later submarines began almost simultaneously with work on the first. . . . China is doing it differently this time . . . because of the urgency of the surrounding situation."[59] Consistent with the Taiwan scenario hinted at above, it is said that China's nuclear submarines will be ideal for attacking a likely enemy's lengthy seaborne supply lines.[60]

Disturbingly, one article actually does raise the possibility of a long-range land attack and even a nuclear-strategic role for China's future SSN.[61] But it is the 094 SSBN, of course, that is envisioned to have the primary role in the nuclear-strike/deterrence mission. Indeed, the same analysis suggests that, in contrast to Russia, China is planning to base a higher proportion—as many as half—of its nuclear warheads on submarines.[62] Another source states that Chinese "SSBNs, [which] already possess appropriate nuclear counterattack capability, are an important embodiment of national strategic nuclear deterrence."[63]

One Chinese expert identifies bathymetry as influencing SSBN development and deployment. He suggests that countries with shallow coastal waters on a continental shelf (such as China) face strong incentives to develop smaller SSBNs in order to better operate in local conditions.[64] Among the reasons cited by Chinese strategists for continuing development of their nation's SSBN program are the inherent stealth and mobility of the submarine, which combine to make it the "most survivable type of (nuclear) weapon" [生存率最高的武器]. The PLAN is pursuing the 094, therefore, in order to guarantee via deterrence that mainland China is not struck by nuclear weapons and "to make sure, in the context of regional war, to prevent direct intervention by a third party" [阻止'第三者'直接介入的效果]. In this analysis, China's nuclear forces are viewed as critical to deterring Washington in a Taiwan scenario, and the author is unusually candid: "At present, our country's nuclear deterrent forces are insufficient; [therefore] the potential for U.S. military intervention in a cross-Strait conflict is extremely high."[65] Another source, citing China's development of the 094 submarine, emphasizes that "if a war erupts across the Taiwan Strait one day, facing the danger of China waging nuclear war, it will be very difficult for America to intervene in the cross-strait military crisis."[66]

Another PRC analysis draws a direct link between the 094 and U.S. missile defense capabilities. It proposes: "In the face of the continual upgrade of the U.S. theater missile system and the excited U.S. research and development of all sorts of new antimissile systems, of course we cannot stand by idly and watch. . . . We must . . . [adopt] countermeasures. The most important of these countermeasures is to exert great effort in developing new types of nuclear-powered strategic

missile submarines which are more capable of penetrating defenses." Failure to do so, according to these authors, will increase the likelihood that "the opponent's nuclear cudgel may some day come crashing down on the heads of the children of the Yellow Emperor."[67]

A somewhat more subtle justification for the 094 makes the argument in quasi-legalistic terms. Since China currently has a no-first-use policy for its nuclear forces, it is said to require the most survivable type of nuclear weapons (i.e., SSBN-based). The same analysis cautions that there is no need to build SSBNs in the excessive numbers that characterized the Cold War at sea. Rather, China will seek a "balanced" [均衡] nuclear force (both land and sea-based), just as it will seek a balanced navy.[68]

There appears to be some recognition that an effective sea-based deterrent hinges on more than stealthy second-generation nuclear submarines. A student at China's Central Party School cautions that unless the PLAN "possess[es] the ability to control passage in and out of important strategic passages in times of crisis. . . . In wartime, it is possible that PLAN vessels might suffer enclosure, pursuit, blocking, and interception by the enemy. Besieged in the offshore waters, [China's] sea-based nuclear deterrent could be greatly reduced."[69]

CAPABILITIES

For Western analysts, the most important details concerning the 093 and 094 submarines involve their projected deployment numbers and capabilities. Here the authors will examine both Chinese naval writings and related technical research to suggest a range of possibilities. It bears repeating that we do not endorse the estimates offered below but are merely presenting the data for other scholars and analysts to consider.

A major theme of Chinese writings is that while China cannot yet build submarines that meet advanced Western standards in all respects, it is intent on building successful 093 and 094 submarines. According to one source, "The technology involved is relatively mature."[70] The situation is strikingly different from that surrounding China's first generation of nuclear submarines, which were built in the 1960s and 1970s when China was unstable, impoverished, isolated, and technologically backward. One author cites China's "successful economic reforms" over the "past twenty years" and the accompanying "technological progress" as providing the necessary expertise and adequate "resources" for successful nuclear submarine development.[71] China is finally poised to capitalize on its decades of experience with related development and manufacturing processes.[72] Because of these advances, China's new nuclear submarines will not necessarily be copies of either American or Russian submarines but rather products of an indigenous Chinese effort that is informed by foreign "best of breed" technologies and

practices. Nor will Chinese nuclear submarines necessarily be used in the same roles for which U.S. and Soviet submarines were optimized (e.g., antisubmarine warfare).[73]

The actual number of 093 and 094 submarines that China constructs and deploys will offer insight into its naval and nuclear strategies. One Chinese source suggests that by 2010, China will field a total of six 094 SSBNs, divided into patrolling, deploying, and refitting groups.[74] Consistent with this projection, another source suggests that these groups will comprise two SSBNs each.[75]

Another critical question concerns the 093 and 094 submarines' acoustic properties. Chinese sources universally recognize that noise reduction is one of the greatest challenges in building an effective nuclear submarine.[76] PRC scientists have long been conducting research concerning the fundamental sources of propeller noise. For instance, experts at China Ship Scientific Research Center developed a relatively advanced guide-vane propeller by the late 1990s.[77] This, and the fact that China already has advanced seven-blade propellers with cruciform vortex dissipaters on its indigenous Song-class and imported Kilo-class diesel submarines, suggests that the 093 and 094 will have significantly improved propellers. A researcher in Qingdao's 4808 Factory also demonstrates Chinese attention to the need to use sound-isolation couplings to prevent transmission of vibrations to the ocean from major fresh-water circulating pumps in the steam cycle.[78] Advanced composite materials are credited with capability to absorb vibrations and sound.[79]

One Chinese researcher states that the 093 is not as quiet as the U.S. *Seawolf* class or *Virginia* class but is on a par with the improved *Los Angeles* class.[80] Another analyst estimates that the 093's noise level has been reduced to that of the Russian Akula-class submarine at 110 decibels [分贝].[81] He states that the 094's acoustic signature has been reduced to 120 decibels. According to this report, this is definitely not equal to that of the *Ohio* class, but is on a par with the *Los Angeles*.[82] There is no additional information given to evaluate concerning the origins or comparability of these "data."

It is conceivable, if unlikely, that the PRC has achieved a major scientific feat concerning the propulsion system for nuclear submarines. A wide variety of Chinese sources claim that China has succeeded in developing a high-temperature gas-cooled reactor (HTGR) [高温气冷堆] suitable for use in its new-generation nuclear submarines. This development is described as a "revolutionary breakthrough" [革命性突破].[83] Another source elaborates: "HTGR is the most advanced in the world, [its] volume is small, [its] power is great, [its] noise is low—it is the most ideal propulsion system for a new generation of nuclear submarines. The United States and Russia have both not achieved a breakthrough in this regard. According to Western reports, in the first half of 2000, China successfully

installed an HTGR on a nuclear submarine. If this information is true, the 093 uses this advanced propulsion technology."[84]

This same analyst suggests that the need to incorporate the new HTGR explains why 093 development has stretched out over a number of years.[85] HTGR development is indeed cited as a major component of China's 863 High Technology Plan [863高科技计划] to develop selected key technologies.[86] The Institute of Nuclear Energy Technology (INET) at Qinghua University has constructed a ten-megawatt HTGR, known as HTR 10.[87] Qinghua and MIT signed a collaborative HTGR research agreement in 2003.[88] The chief scientist and office director in charge of energy technology development for China's 863 Plan write that HTR 10's "high level results" make it "one of the most promising fourth generation systems."[89] In the area of nuclear reactor design, construction, and components, robust indigenous research has been supplemented by extensive technological assistance from such Western corporations as Westinghouse.[90]

As implied above, some Chinese analysts believe that the HTGR promises to give PLAN submarines unprecedented maximum speed.[91] China's Han submarines, by contrast, are said to have a maximum speed of twenty-five knots, while the Xia has a maximum surface speed of sixteen knots and underwater speed of twenty-two knots.[92] As mentioned before, however, Huang Xuhua believes that submarine speed is less important than concealment, which in turn depends on minimizing a submarine's acoustic signature.[93] Another possible benefit of advanced nuclear propulsion is increased reactor safety.

Despite the above speculation, there are substantial reasons to doubt that China would be willing or able to put such an immature technology in its second generation of nuclear submarines, as this would constitute a substantial risk on the investment. Moreover, as Shawn Cappellano-Sarver points out, "The technical difficulties that would have to be overcome with the blowers (the need for magnetic bearings) and the fuel loading system to make an HTGR compatible with a submarine are formidable. This makes the probability of the 093 being equipped with an HTGR small."[94]

As for armaments, the same analyst states that the 093 submarine may be equipped with "Eagle Strike" YJ-12 [鹰击-12] supersonic antiship cruise missiles.[95] The YJ-12 has been developed as part of a larger Chinese quest for improved cruise missiles, particularly submarine-launched variants.[96] The PLAN is presently working to equip "attack submarines with long distance, supersonic, low altitude missile travel, high accuracy, and strong anti-interference anti-ship missiles, with the combat capability to attack enemy surface ships from mid- to long-range."[97]

The 093 is said to have sixty-five-centimeter torpedo tubes.[98] In his interview, Huang discusses the engineering issues associated with torpedo tube diameter,

explaining that "wider tubes support superior torpedoes and are not for . . . missiles or sound-dampening."[99] As for the number of missile tubes in the 094, two sources predict sixteen tubes, compared with the Xia's twelve.[100] A third source forecasts between twelve and sixteen tubes.[101]

Admiral Liu Huaqing has recounted China's initial failure and ultimately successful (on 12 October 1982) effort to test launch the JL-1, or CSS-N-3, SLBM from a submerged Golf-class submarine. This made China the fifth nation to have an undersea nuclear capability. "Launching carrier rockets from underwater has remarkable advantages, compared with using land-based or airborne strategic nuclear weapons," Liu emphasizes. "This is because the launching platform . . . has a wide maneuver space and is well concealed. This gives it better survivability and, hence, greater deterrent power."[102] The JL-1 was test-fired successfully from the Xia on 15 September 1988.[103] According to one PRC analyst, "China believes that although the U.S. thinks the Xia-class submarine is too noisy and easy to detect, the Chinese navy is capable of going into the Pacific without detection because of its special tactics."[104]

The 094's JL-2 SLBM is projected to have a range of eight thousand kilometers, compared to 2,700 kilometers for the JL-1.[105] There is also speculation that, in contrast to JL-1, JL-2 will have multiple independently targeted reentry vehicles (MIRVs). This would enhance nuclear deterrence by increasing China's number of undersea warheads and significantly bolstering their chances of penetrating an American national missile defense. One Chinese source predicts that each JL-2 SLBM will carry three to six warheads.[106] Another article makes the extremely ambitious claim that JL-2s already carry six to nine warheads each and in the future will carry fourteen to seventeen.[107]

Appraisals of China's capability to field competent and lethal diesel submarines in the littorals have slowly changed from ridicule to grudging respect of late.

The question of how Beijing will communicate with its newly modernized submarine fleet constitutes a major operational challenge.[108] If China emulates other submarine powers, it is likely to pursue total redundancy for submarine command and control, relying on multiple means employing different physical principles. Extremely low frequency (ELF) communications have the advantage that messages can be received at depths of two to three hundred meters, thereby maximizing submarine stealth and survivability. There are major problems with ELF in practice, however, and it is not clear that China has mastered this technology. Most submarine communications are conducted across a range of frequencies, from very low frequency to extremely high frequency. Submarines receive messages through exposed antennas while at periscope depth, or via floating or

slightly submerged antennas while near the surface. China might, therefore, create a dedicated maritime aircraft squadron for communications with its submarine fleet, if it has not already done so. A lengthy profile in 舰船知识 *(Naval and Merchant Ships)* of the U.S. TACAMO ("Take Charge and Move Out") air fleet, which supports American SSBN operations, may buttress the general conclusion that Beijing is determined to perfect its communications with its submarine fleet as it launches a new generation of nuclear vessels.[109]

The SSBN communications issue is especially acute, but China has been grappling with this particular problem for more than two decades. According to Admiral Liu, China on 16 April 1984 used "the satellite communications system for our nuclear-powered submarines to test the channels" of the Dong Fang Hong-2 communications satellite, which had been launched eight days before. "The navy's satellite communication system for its nuclear-powered submarines was the first one to open a test communication line with the satellite," Admiral Liu reports. "The success of the nuclear-powered submarine's experiment on instantaneous transmission of messages via the satellite . . . pushed China's submarine communication to a new level."[110]

Centralization is arguably essential for SSBN command and control, particularly in the highly centralized PLA. According to John Wilson Lewis and Xue Litai, China's SSBN force, like all other nuclear units, is overseen by the Strategic Forces Bureau. This arrangement is intended to ensure that "only the [Central Military Commission] Chairman—not China's president—has the authority to launch any nuclear weapons after getting the concurrence of the Politburo Standing Committee and the [Central Military Commission]."[111]

However, it is unclear to what extent centralized SSBN command, control, and communication (C3) would be technologically possible for China. "At present China's communications infrastructure is vulnerable to a first strike," Garth Hekler, Ed Francis, and James Mulvenon contend. "As a result, the SSBN commander would require explicit and restrictive rules of engagement and . . . targeting data, lest crisis communications with Beijing reveal [the SSBN's] position to hostile attack submarines or if the submarine is cut off from Beijing after a decapitating first strike." On the broader question of submarine force command and control doctrine, it is suggested, "While the PLAN may recognize the effectiveness of decentralized C3 for certain types of submarine missions, it appears to be seeking to create a more tightly centralized submarine C3 system by developing command automation, network centric warfare strategies, and advanced communications technologies."[112]

Chinese naval planners realize that rapidly improving equipment is useless without corresponding improvement in human performance. The PLAN has for some time been pursuing nuclear submarine missions of extended duration. In

his recently published memoirs, Admiral Liu relates that he raised the priority of long-duration exercises for PLAN nuclear submarines in order to test all parameters of these new capabilities.[113]

Apparently as part of these expanded activities, the current PLAN chief of staff, Sun Jianguo, reportedly commanded Han 403 during a mid-1980s mission of ninety days that broke the eighty-four-day undersea endurance record previously set by USS *Nautilus*.[114] Chinese military medical journals evince a very clear interest in undersea medicine, especially issues surrounding physical and psychological challenges related to lengthy submerged missions.[115]

An even more important challenge for nuclear submarine effectiveness is maintaining a cadre of quality technical personnel. According to one Chinese source, "The greatest problem facing submarine forces today is: it is difficult to have skilled technical operators; especially officers, because they must have good nuclear reactor equipment maintenance and repair skills."[116]

Chinese analysts acknowledge that America has long been dominant in undersea warfare, especially after the Cold War.[117] Many Westerners are therefore surprised that China would have the temerity to challenge the United States directly in this specialized domain of warfare. Yet PLAN analysts keep close tabs on U.S. Navy submarine building rates and carefully probe for potential American submarine force vulnerabilities.[118] They have studied the 8 January 2005 accident involving USS *San Francisco* with great interest.[119] A 2006 article by a senior PLAN strategist suggests that "China already exceeds [U.S. submarine production] five times over" and that eighteen U.S. Navy submarines based in the Pacific might be at a severe disadvantage against seventy-five or more Chinese submarines.[120] While these assessments are ultimately attributed to an American source, the PLAN analyst makes no effort to deny or reject these assessments.

It is widely held that the trajectory of Chinese nuclear propulsion may be one of the best single indicators of whether or not China has ambitions to become a genuine global military power.[121] With no need to surface in order to recharge batteries or any requirement for refueling, not to mention unparalleled survivability if acoustically advanced and properly operated, nuclear submarines remain ideal platforms for persistent operations in far-flung sea areas. They will form an efficient means for China to project power should it choose to do so. Available information on Chinese SSN and SSBN build rates currently suggests the continuation of a moderate development plan.[122] However, Washington should, at a minimum, develop contingency long-range planning for a determined PRC naval challenge, spearheaded by a new and formidable force of Chinese nuclear submarines.

NOTES

A version of this article will appear in Andrew Erickson, Lyle Goldstein, William Murray, and Andrew Wilson, eds., *China's Future Nuclear Submarine Force* (Annapolis, Md.: Naval Institute Press, forthcoming in 2007).

1. "U.S. Confirms Aircraft Carrier Had Close Brush with Chinese Submarine," *Japan Today,* 14 November 2006, available at www.japantoday.com/jp/news/390343.
2. Changing assessments are discussed, for example, in Jim Yardley and Thom Shanker, "Chinese Navy Buildup Gives Pentagon New Worries," *New York Times,* 8 April 2005, www.nytimes.com/2005/04/08/international/asia/.
3. Ronald O'Rourke, "China's Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress," Report for Congress, Order Code RL 33153 (Washington, D.C.: Congressional Research Service, updated 29 August 2006), p. 8.
4. In a recent comprehensive, independent review, four of five proposed alternative force structures for the U.S. Navy envisioned substantial reductions in the submarine force. See *Options for the Navy's Future Fleet* (Washington, D.C.: Congressional Budget Office, May 2006), p. 39.
5. [Yang Yi], "谁的潜艇今后说了算?" [Who Can Estimate the Future Number of Submarines?], 舰船知识 [Naval and Merchant Ships] (July 2006), p. 28.
6. See PRC Ministry of Defense, "China's National Defense in 2004," www.chinadaily.com.cn/english/doc/2004-12/28/content_403913_4.htm. Other indications of increased prioritization of China's nuclear submarine force include personnel appointments. The previous PLAN commander, Adm. Zhang Dingfa [张定发], a former nuclear submariner, may have been involved in China's development of naval strategic nuclear weapons. See Chi Hsiao-hua, "High-Level Shuffle in the Navy Is Not Aimed at the Taiwan Strait," *Sing Tao Jih Pao*, 8 January 2005, A30, FBIS document CPP20050108000049. Another nuclear submariner, Rear Adm. Sun Jianguo [孙建国], was selected to be chief of Naval Staff in January 2005.
7. These would include, at a minimum, 当代海军 [Modern Navy], 人民海军 [People's Navy], 舰船知识 [Naval and Merchant Ships], 舰载武器 [Shipborne Weapons], and 现代舰船 [Modern Ships].
8. See John Wilson Lewis and Xue Litai, *China's Strategic Seapower* (Stanford, Calif.: Stanford Univ. Press, 1994).
9. 刘华清 [Liu Huaqing], 刘华清回忆录 [The Memoirs of Liu Huaqing] (Beijing: People's Liberation Army, 2004). All original quotations from Liu's autobiography were checked against the wording in the FBIS translation of chapters 16–20, CPP20060707320001001. Wording different from the FBIS translation is used whenever the authors felt that it better reflected Liu's meaning or would be more comprehensible to the reader.
10. Ibid., p. 468.
11. Ibid., p. 474.
12. Peng Guangqian and Yao Youzhi, eds., *The Science of Military Strategy* (Beijing: Military Science Publishing, 2005), p. 411.
13. Data in this paragraph are derived from 林长盛 [Lin Changsheng], "我国核潜艇的战力" [The Combat Power of China's Nuclear Submarines], 世界航空航天博览 [World Aerospace Digest], no. 103 (September 2004), p. 31. *World Aerospace Digest* is a semimonthly journal published by China Aerospace Technology Group, Inc. This article is perhaps the most comprehensive analysis to date of PRC nuclear submarine capabilities. Although this is a PRC source, Lin is actually a former Taiwanese military officer who recently spent time in the United States on a research fellowship. For Lin's background, see William Chien, "U.S. Military-Iraq," *VOA News Report,* 22 April 2003, available at www.globalsecurity.org/wmd/library/news/iraq/2003/iraq-030424-20194149.htm and www.1n0.net/2004/12-22/0442319087-7.html. Lin's publications include "Counting China's ICBMs," *Studies on Chinese Communism* 37, no. 7 (July 2003), pp. 80–90.
14. Liu Huaqing, *Memoirs of Liu Huaqing*, p. 477.
15. Ibid., pp. 476–77.
16. The quotations in the paragraph are from 刘耿 [Liu Geng], "如果大陆不得不用武力解放台湾美国会武装干扰马?" [Will the U.S. Interfere Militarily If Mainland China

Has No Choice But to Use Force to Liberate Taiwan?], 军事展望 [Military Prospect] (September 2002), pp. 41–42. For similar analysis, see 李兵 [Li Bing], doctoral dissertation, 国际战略通道研究 [Research on International Strategic Sea Lanes], 中共中央党校 [Chinese Communist Party Central Party School], 1 May 2005, p. 360.

17. 简杰 [Jian Jie], "神话中德双子座: 传说中的中国21世纪军事安全的海上长城—西方媒体报道中国下一代核潜艇" [The Legend of the Virtuous Twins: Discussion of China's 21st Century Military Security Maritime Great Wall: The Western Media Cover China's Next Generation Nuclear Submarine], 国际展望 [World Outlook], no. 448 (August 2002), editor's text box, p. 22.

18. 王逸峰, 叶景 [Wang Yifeng and Ye Jing], 从中日核潜艇事件看我核潜艇的突防 [What the Nuclear Submarine Incident between China and Japan Tells Us about the Ability of China's Nuclear Submarines to Penetrate Defenses, Part 1], 舰载武器 [Shipborne Weapons] (January 2005), pp. 27–31. For more on this episode, see Andrew Erickson, Lyle Goldstein, and William Murray, "'Gate Crashing': China's Submarine Force Tests New Waters," *Chinese Military Update* 2, no. 7 (April 2005), pp. 1–4.

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94. Cappellano-Sarver, "Naval Implications of China's Nuclear Power Development."
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103. For a history of JL SLBM development, see 台风 [Tai Feng], "'巨浪' 冲天举世惊 中国海军潜射弹道导弹" ["Great Wave," A Shock Soaring throughout the World: The PLAN's SLBM] [Shipborne Weapons], no. 9 (2004), pp. 32–35.
104. "终报震慑:中国的战略导弹" [Entirely Frightful: China's Ballistic Missiles], 军事纵横 [Military Overview], no. 101, p. 13.
105. Jian Jie, "The Legend of the Virtuous Twins," p. 23. One Internet source speculates that the JL-2 is an underwater variant of China's DF-31. See "漏斗子关于094和巨浪言论" [Opinions Regarding 094 and Julang], 读卖新闻 [Mainichi Daily News], 21 June 2005, available at military.china.com/zh_cn/critical3/27/20050621/12418878.html.
106. Jian Jie, "The Legend of the Virtuous Twins," p. 23. An unofficial posting on China Central Television's website claims seven to eight warheads per JL-2. See "现在中国的巨浪二型潜射弹道导弹" [China's Current JL-2 SLBM], 央视国际首页 > 论坛首页 > 网评天下 [China Central Television International Lead Page > Forum Lead Page > China Commentary Network], 4 August 2004, available at bbs.cctv.com.cn/forumthread.jsp?id=4513301.
107. Yan Lie, "Becoming Aware of the Ocean Depths," pp. 1, 27. By way of comparison, when first deployed in 1971 the U.S. Navy's Poseidon SLBM could reportedly carry as many as fourteen MIRVs. France's M-4 SLBM reportedly carries up to six MIRVed warheads. In 2001, a noted Chinese nuclear expert claimed, "China has the capability to develop . . . MIRVs . . . but has not done so." See Li Bin, "The Impact of U.S. NMD on Chinese Nuclear Modernization," working paper, Pugwash Workshop on East Asian Security, Seoul, April 2001.
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122. Having launched the first 093 in 2002, China now may be working on hull three of that class. The first 094 was reportedly launched in 2004. See Richard Fisher, "Submarine Incident Highlights Military Buildup," *Asian Wall Street Journal,* 17 November 2004, available at www.strategycenter.net/research/pubID.51/pub_detail.asp.

MERCHANT SHIPPING IN A CHINESE BLOCKADE OF TAIWAN

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There is a substantial literature on the various methods and tactics the armed forces of the People's Republic of China (PRC) could employ to enforce a naval blockade of Taiwan during a Taiwan Strait crisis.[1] However, there has been very little assessment of how the qualities of today's global maritime shipping industry might affect the effectiveness of a blockade. If China chose to implement a blockade, would the global maritime industry continue to utilize Taiwan's ports and support its import/export trade in the face of Chinese threats? If international merchant shipping abandoned the Taiwan market, does the maritime industry of the Republic of China have sufficient capacity to keep its supply lines filled on its own?

This article attempts to answer these questions, making the case that the global maritime trade industry is not likely to support Taiwan's seaborne trade in the face of a PRC blockade, leaving Taiwan's merchant fleet to meet the island's strategic resupply needs. Although the merchant fleet owned by Taiwan-based interests is theoretically able to meet most of the island's critical energy and food supply demands on its own, the dynamics of vessel corporate ownership and flag-of-convenience registry will likely place the burden of the resupply effort on the small percentage of ships actually registered under the Republic of China (ROC) flag. Without support from foreign-flagged vessels, Taiwan's strategic resupply lines cannot be sustained.

Finally, recommendations for policy makers in Taiwan are offered: possible methods to mitigate capacity deficiencies in specific areas of the ROC maritime

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trade industry; measures to offset physical vulnerabilities in shore-based infrastructure; and considerations for fully exploiting the capabilities of modern merchant ships. Shipping-related considerations for the United States and Japan are also included, since a Taiwan Strait crisis could significantly impact international maritime trade in the entire East Asian theater.

THE GLOBAL MARITIME SHIPPING INDUSTRY: WOULD IT SUPPORT TAIWAN IN A CRISIS?

The global maritime shipping industry is a true reflection of global economic interdependence. It is an ever more networked system in which the ships and ports are portions of a seamless, interlocked land-sea transportation web. It strives to deliver products from source to customer "just in time," minimizing costs of warehousing and delay. This goal has led to larger and faster ships that exploit economies of scale and rely on large "megaports." These megaports are central destinations for containerized cargo shipped between major trade regions; then they serve as transshipment distribution centers, shipping cargo on smaller "feeder" ships to lesser intraregional ports in hub-and-spoke fashion.[2] Asia, befitting its growing strength as the world's leading manufacturing center, now handles 62 percent of the world's total container trade and hosts twenty of the top thirty container ports by volume (including the top six). Taiwan's port of Kaohsiung ranks sixth in the world in container trade, handling 9.71 million TEUs (twenty-foot-equivalent units) in 2004. Adding in Taiwan's other ports, total container traffic through Taiwan exceeds twelve million TEUs per year.[3]

Despite Taiwan's growing influence as an economic and transportation hub, it is doubtful that regional and global shipping interests would continue to use its ports in the face of an open Chinese blockade of the island. There is little economic incentive for ship or cargo owners to take that risk when the megaports of Hong Kong, Singapore, Kalang, Tokyo, and Pusan can also transship non-Taiwan-specific cargoes. These alternate transshipment points can absorb the loss of Kaohsiung's throughput, maintaining cargo distribution to lesser regional ports. Removing Taiwan from the East Asian and global transportation network would have noticeable short-term downstream economic effects on shipowners, shippers, and consumers while adjusting to the disruption, but they would be negligible compared to the risks and possible costs of sending shipping into an active war zone.

In an analysis of the economic impact of major labor disruptions that stopped trade in American west coast ports during the fall of 2002, Peter V. Hall demonstrates that there is little macroeconomic impact from even large shipping disruptions until actual capacity is removed from the system.[4] This implies that the sinking of ships in a blockade of Taiwan could have significant

downstream economic effects but also that shipowners would seek alternatives, even if it meant short-term financial losses. Hall observes that suppliers and consumers have an uncanny ability to exploit flexibility in the global trade system in order to work around localized trade disruptions. If shippers who regularly use Taiwan's ports as a transshipment point can easily find alternative arrangements, consuming industries that rely on Taiwan's exports will likewise be able to find alternative sources. The short-term economic impact, then, may be noticeable in certain market sectors, but a disruption in Taiwan's trade will simply shift the competitive advantage of Taiwan's exports (table 1) to exporters who are not threatened by Chinese ballistic missiles and blockading forces.

TABLE 1
TOP FIVE TAIWAN EXPORTS (2003)

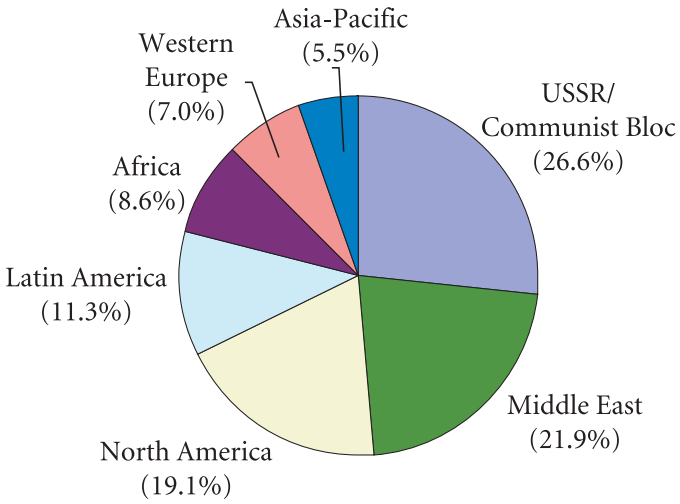
Export Commodity	Value (billion USD)	Share of Total ROC Exports (%)	World Market Share (%)
Transistors, valves, etc.	20.37	14.49	7.44
Office, automatic data processing (ADP) machine parts, etc.	11.21	7.98	7.26
ADP equipment	10.68	7.60	5.47
Telecom equipment, parts, accessories	6.56	4.67	3.02
Electrical machinery	5.04	3.59	4.98
All export commodities	140.60	100.00	2.05

Source: United Nations Council on Trade and Development, *UNCTAD Handbook of Statistics 2005,* Document TD/STAT.30 (New York: United Nations, 2005), p. 163.

There are important parallels with the reaction of merchant shipping to the "tanker wars" of the Iran-Iraq conflict in the 1980s, but they do not hold up with regard to the economics of Taiwan's maritime trade. Contrary to some analysts, the motivation of tankers to continue sailing through the war zone of the Persian Gulf should not be used to predict how shipping might react in a China-Taiwan scenario.[5] The economic influences of oil were significantly greater and more complex in the tanker wars than would be any cargo involved in Taiwanese trade.

During the tanker wars, there was no alternative free-market source for the quantity of oil the Middle East could produce (figure 1). Despite reduced world consumption following the "oil shocks" of the 1970s, the demand was sufficient to buoy tanker freight rates well above anything shipowners could have gotten on other trade routes. The enormous supertankers that carry Middle East crude are specifically designed for the economics of the large-volume, long-distance crude oil trade and were cost-prohibitive to operate on any other route at the time.[6] The rapid expansion of the world tanker fleet in the early 1970s, followed by market instability and a global economic slowdown, reduced demand and produced a severe overcapacity of tankers from 1979 to 1985 (figure 2). Hundreds of tankers laid up, and the resale prices of new ships plummeted to scrap value.[7]

FIGURE 1
WORLD OIL PRODUCTION BY REGION, 1987



Source: Data derived from the British Petroleum Co., *BP Review of World Energy—1988* (London: British Petroleum, 1988), pp. 4–5.

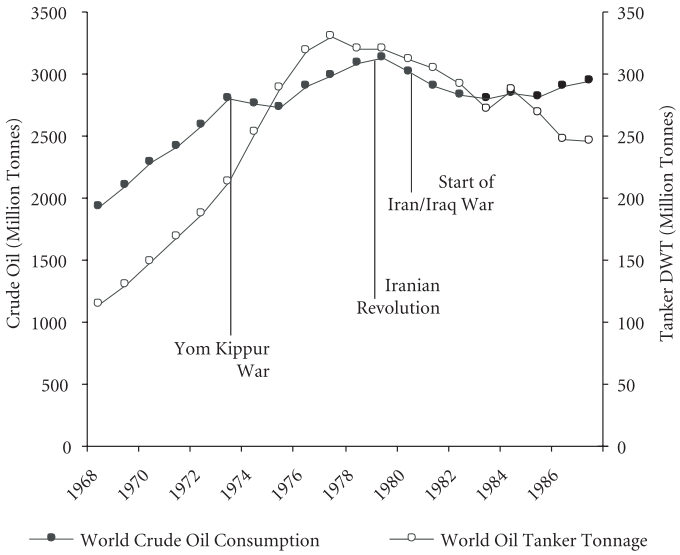
Faced with heavy debt burdens and the depreciating value of their ships, then, owners had a real economic incentive to risk sending their ships into the Persian Gulf war zone. For many the only other option was bankruptcy. In the Taiwan scenario, however, there is no similar overpowering economic force to drive neutral ship and cargo owners to risk attack from blockading forces.

Similarly, the profiteering motivation for shipowners to sail into danger in World Wars I and II is not an apt comparison with regard to the specifics and scope of a China-Taiwan scenario.[8] The world wars were full-scale, global conflicts. The dramatic rise in freight rates seen then resulted from a prewar supply of merchant ships and rapidly increasing demand once the wars started. For Great Britain, this demand ranged from importing raw materials to the home islands to ferrying troops and supplies around the world. A scarcity of shipping resulted, until, with all the inherent delays, wartime emergency fleets could be built. The volume and diversity of trade involved in the allied war efforts were orders of magnitude greater than would be required to support Taiwan in a cross-strait crisis.

Furthermore, much of the debated profiteering by British shipowners in World War I occurred early in the first year of the war, before the government took full control of shipping. During this period most routes were relatively safe, as unrestricted submarine warfare had not yet emerged. Martin Doughty argues that although British shipowners were quite willing to take advantage of high freight rates on safer routes outside active war zones, when it came to frontline danger, "experience had shown that owners were unwilling to charter for such services, no matter how generous the rates offered."[9] When unrestricted U-boat warfare threatened the very survival of the country, patriotism sometimes overcame this reluctance; otherwise, the government found ships for high-threat routes by requisitioning, taking them up from trade.

Of course, some neutral shipowners and crews would be willing to run a Chinese blockade for financial gain. History is filled with examples of mercenaries,

FIGURE 2
WORLD OIL CONSUMPTION AND TANKER TONNAGE, 1968–88



Sources: Data derived from Michael Champness and Gilbert Jenkins, *Oil Tanker Data Book—1985* (London: Elsevier Applied Science, 1985), pp. 5–19; and UN Council on Trade and Development, *Review of Maritime Transport 1987* (New York: United Nations, 1988), p. 12.

privateers, and blockade runners risking death in conflicts to which they had no apparent patriotic, ideological, or personal connection—but not in sufficient numbers to have an impact on the ultimate outcome. Such privateers may arise in a Taiwan scenario, but it would be a grave error for Taipei to expect large volumes of neutral-flagged shipping to sail into blockaded ports for the money. Consequently, if five thousand ships a month now call at Taiwan's ports, blockading PRC forces are likely to find a much less target-rich environment.[10] With most neutral shipping driven away, the PRC would be well on its way to cutting off trade to the island.

The remaining consideration would be whether the ROC merchant marine was capable of sustaining Taiwan on its own. There is little doubt that the combination of a ballistic missile barrage and naval blockade would devastate Taiwan's economy, but if its populace chose to defy Chinese pressure, could the island's merchant marine supply food and energy at a basic survival level? Answering this question requires a detailed examination of Taiwan's food and energy supply lines and the capacity and capability of the ROC shipping industry.

TAIWAN'S MERCHANT MARINE FLEET

Taiwan boasts an impressive commercial fleet. According to Lloyd's of London, the fleet of merchant vessels owned by ROC-based interests ranks eleventh in the world by deadweight, and sixth in Asia, behind Japan, China, Singapore, Hong Kong, and South Korea.[11] Its 28.40 million tonnes of shipping represents 2.8 percent of the world's total deadweight tonnage, exceeding the proportional value of global trade generated by Taiwan (approximately 2 percent).[12] This makes Taiwan one of the few major trading nations that contributes a surplus of shipping capacity to the world market, relative to its own economic production. Of the 897 merchant vessels under ROC ownership, 767 are of one hundred gross tons or more. Since vessels under a hundred gross tons do not contribute significantly, further references to ROC-owned vessels apply only to those 767.[13]

Determining the ownership and controlling interest of merchant vessels, however, is not always a clear-cut process. It is not uncommon for ships to have different managers, operators, registered owners, and ultimate (actual) owners, of different nationalities and in different locations. Of the 767 vessels ultimately owned by ROC-based interests, only 383 (50 percent) are actually registered to Taiwan corporations.[14] Registered owners are often (but not always) subsidiaries of larger parent corporations that actually own the vessels, established overseas to exploit various tax, regulatory, and legal advantages. Furthermore, many corporate shipowners are "nonoperating" or "absentee owners," owners only in the sense that they hold majority financial interests. Some large shipping conglomerates have financial interests in large fleets but actually operate vessels only in certain market sectors; other owners are international financial and investment holdings companies that charter their vessels to independent shipping companies on long-term operating contracts. Locating the actual controlling interest of a particular vessel at any given time, then, can be a challenging endeavor involving a maze of corporate relationships and contractual legalese.

But more important than legal ownership in determining what merchant vessels would be available in a national emergency is flag of registry. The number of these ships actually sailing under the Republic of China's flag is considerably smaller than the fleet owned by ROC-based interests. Of the 767 ROC-owned vessels, only 213 (28 percent) are registered under the Republic of China flag—by deadweight tonnage, 4.96 million tonnes, or 17 percent of the fleet total.[15] Of the remainder, over 80 percent are registered in Panama or Liberia.

The relatively high proportion of ROC-owned merchant ships under foreign registry raises several security implications for Taiwan. Most significantly, the foreign-flagged vessels would be effectively out of Taipei's direct jurisdictional reach in a crisis. While the government could immediately direct nationally registered shipping through legislative or executive action, extending centralized control to foreign-flagged vessels would require the active cooperation of shipowners.[16] Even if ROC owners of foreign-flagged ships realigned their operations to support a war effort, they would have a loophole by which they could pull their ships out of danger should Taiwan's prospects or their own allegiances waver.

The question of allegiance and sense of duty also applies to the crews. As with most other major maritime trading nations, Taiwan's domestic labor laws and regulations extend to all ROC-flagged vessels, and they require that all nationally registered ships have predominantly domestic crews.[17] Conversely, foreign-flagged vessels, being free of the costs and union restrictions of domestic labor, typically employ diverse, multinational crews.[18]

Registering ships under foreign "flags of convenience" dates back to the early 1800s, but only a very small percentage of ships were so registered prior to the 1950s.[19] Consequently, the nationalities of most Allied mariners in World War II corresponded to the registries of their ships (the crews of British-flagged ships were predominantly British nationals, and so on).[20] Nonetheless, British and American merchant fleets both experienced inefficiencies due to absentee and discipline issues prior to 1940–41. In particular, employer-union relations in the U.S. merchant fleet were tumultuous prior to American entry into the war. The fall of France and the attack on Pearl Harbor galvanized the merchant mariners into the brave, highly dedicated force that is remembered as one of the keys to victory in the Battle of the Atlantic.[21] Today, however, with a high proportion of foreign-flagged, foreign-crewed ships, the Republic of China cannot count on such spirit in its merchant fleet.

The Taiwan government recognizes this dilemma, but there are no quick fixes or easy answers. The Ministry of Transportation and Communications (MOTC) has revised regulatory structures in order to encourage national registry of new ships.[22] However, Taiwan's entrance into the World Trade Organization (WTO) has exposed to foreign competition domestic shipping sectors that had previously favored national-flag carriers. Additionally, a recent survey of shipowners in Taiwan revealed that the high cost of domestic crews remains a significant disincentive to registering vessels under the ROC flag. A chronic shortage of qualified domestic mariners, in fact, impedes any expansion of the national-flagged fleet. Survey respondents also cited special requirements upon ships registered in Taiwan—restricting them from calling directly at PRC ports and mandating enrollment in multiple ship-classification societies—as major economic disincentives.[23]

As a whole, the ROC merchant fleet is dominated numerically by containerships and dry bulk carriers. Combined, they account for 50 percent of the ships and 73 percent of the total deadweight. The container sector forms the core strength of the fleet; Evergreen Marine Corporation alone owns seventy modern containerships, with a total capacity in excess of 280,000 TEUs.[24] Evergreen is the largest container owner-operator line in Asia and second in the world only to the A. P. Moller Group of Denmark (the parent company of Maersk Lines).[25] Not far behind, Taiwan's Yang Ming Marine Transport Company and Wan Hai Lines own container fleets of forty-seven (83,934 TEU) and forty (124,513 TEU) ships, respectively.

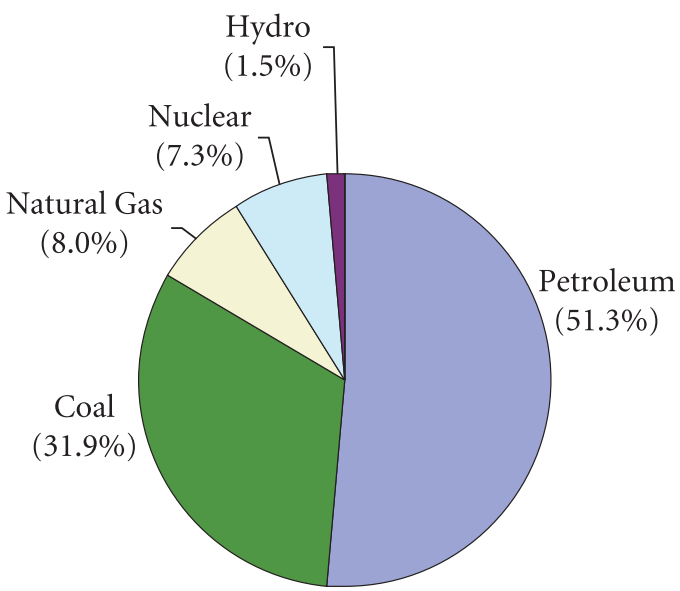
One hundred fourteen of Taiwan's containerships are modern, high-speed vessels with service speeds in excess of twenty knots; of these, forty-one are capable of sustained speeds of twenty-five knots or more.[26] Containerships are typically considered to have less strategic lift utility than roll-on/roll-off (RO/RO) vessels with respect to support of armed forces (since tanks, trucks, artillery

pieces, etc., do not fit neatly into standard shipping containers), but Taiwan's large, high-speed containerships could be valuable assets in resupply. High speed increases cargo throughput by minimizing delivery cycle times and reduces vulnerability to submarine attack. While it is typically uneconomical under normal peacetime conditions, both liquid and dry bulk cargoes can be containerized, and the ability to transport these cargoes at sustained speeds of twenty to twenty-five knots offers notable advantages.

CRITICAL CARGO CAPACITY: ENERGY AND FOOD SUPPLY

Maintaining a flow of energy to Taiwan through a PRC blockade would pose formidable challenges for ROC leadership. Taiwan is not blessed with abundant natural resources; aside from the electrical power produced by its three nuclear power plants and a small contribution from hydro power, virtually all of its energy is supplied from imported oil, coal, and natural gas.[27] An August 2005 U.S. Department of Energy study found that Taiwan has proven in-ground petroleum reserves of only four million barrels, yielding approximately 8,400 barrels per day in domestic production.[28] Since domestic demand consumes approximately a million barrels per day, this can hardly be counted as a strategic reserve. The inadequacy in natural reserves is offset by regulatory requirements that Taiwan's petroleum refiners maintain at least a sixty-day supply of product against potential supply disruptions. Additionally, the Taipei government established an oil stockpile in 2001, sized to meet domestic demand for thirty days.[29]

FIGURE 3
TAIWAN'S ENERGY SUPPLY STRUCTURE, 2005



Source: Taiwan Bureau of Energy, Ministry of Economic Affairs, "Energy Supply (by Energy Form), www.moeaec.gov.tw/.

This combined ninety days of gasoline and other petroleum-based products, however, offers no security for the industrial and power-generation sectors, which are heavily dependent on (imported) coal and natural gas. To protect them, an Energy Management Law mandates that an unspecified coal "safety level" be maintained in storage. Likewise, the Regulations for Implementing the Energy Management Law require utilities supplying natural gas to cities to maintain gas storage facilities, again without setting a minimum reserve

level.[30] Literature indicates that the Taiwan Power Company (TaiPower) maintains a sixty-day supply of coal and that the Chinese Petroleum Corporation (CPC) maintains a seven-day supply of liquefied natural gas in storage against disruptions.[31]

In the oil sector, 77 percent of Taiwan's imports come from the Middle East. The remaining 23 percent is imported from a variety of sources, primarily West African and Southeast Asian petroleum suppliers.[32] Virtually all of the imports are ultimately handled by one of two petroleum companies that dominate the Taiwanese market. One of them, CPC, held a monopoly over all aspects of Taiwan's petroleum market until deregulation in the late 1990s and WTO membership in 2001 allowed the Formosa Petrochemical Company to make inroads.

To supply their refining and distribution networks in Taiwan, both CPC and Formosa Petrochemical own and operate fleets of oil tankers.[33] Together, their forty tankers account for 65 percent of the ROC-owned tanker fleet (sixty-two ships) and 70 percent of its total deadweight (5.49 million tonnes).[34] Taiwan's tanker fleet includes seventeen very large crude carriers (tankers of 150,000–299,999 deadweight tonnes, commonly referred to as VLCCs), all of them owned by either Chinese Petroleum, Formosa Petrochemical, the Sincere Navigation Company, or the Taiwan Maritime Transportation Corporation. The remaining forty-five hulls comprise a variety of smaller shuttle tankers, chemical tankers, and petroleum product tankers. These smaller tankers would play a vital role in a blockade scenario, since the deep draft of fully laden VLCCs prohibits them from entering Taiwan's ports. VLCCs must discharge their cargo at one of Taiwan's two offshore moorings or transfer cargo to smaller shuttle tankers for delivery to port.[35]

Forty percent of Taiwan's total owned tanker fleet is domestically flagged, which represents only 30 percent of the total tanker deadweight (table 2). Of the seventeen VLCCs, only the six owned by CPC fly the Republic of China flag. This becomes potentially important with respect to the ROC tanker fleet's ability to meet the petroleum demand should international carriers abandon the Taiwan market in the face of a Chinese blockade.

As table 3 illustrates, the total ROC-owned tanker fleet has, theoretically, enough capacity to meet 105 percent of Taiwan's crude oil demand. Realistically, however, without foreign-flagged tankers only 31 percent of the current monthly oil import demand could be accommodated (table 4). Even including ROC-owned but foreign-flagged tankers, there would be little margin for losses in the fleet. Any losses, whether resulting from interdiction by blockaders, routine mechanical or operational casualties, or failure of political allegiance among owners or crews, would have immediate consequences for Taiwan's energy supply.

TABLE 2
TAIWAN'S MERCHANT FLEET BY SHIP TYPE AND FLAG OF REGISTRY

	ROC-Owned	ROC-Flagged		Total DWT (t)	ROC-Flagged	
		Number	%		DWT (t)	DWT (%)
Containerships	197	32	16	7,151,211	841,248	12
Oil tankers	62	25	40	5,490,698	1,620,767	30
LNG tankers	1	0	0	76,210	0	0
LPG tankers	6	0	0	134,053	0	0
Dry bulk carriers	186	25	13	13,639,555	2,253,998	17
General cargo carriers	130	20	15	1,113,150	71,838	6
Others	185	111	60	795,625	175,679	22
Total	767	213	28	28,400,502	4,963,530	17

Source: Compiled from Lloyd's Maritime Intelligence Unit, *Lloyd's Maritime Directory 2006,* pp. 978–93.

Note: Includes only vessels of 100 gross tons or more. Combination oil and dry bulk carriers are counted under the Oil Tanker category. All other combination carriers are counted as General Cargo Carriers. Bulk cement and woodchip carriers are counted as Others vice Dry Bulk Carriers. The unit (t) represents metric tonnes (1t = 1,000 kg = 0.98 long tons).

This lack of capacity margin is especially acute given the size of individual tankers. For example, the loss of Chinese Petroleum's VLCC M/T *Dar Yun,* at 262,618 tonnes deadweight, would take a 4.8 percent bite out of Taiwan's total fleet, 16.2 percent of the ROC-flagged crude oil transport capacity. German U-boats in World War II had to sink over fifteen of the T2-SE-A1 tankers of the day (16,613 tonnes deadweight each) to destroy as much British crude oil. Likewise, the loss of just five VLCCs would equal the gross tonnage U-boats claimed by sinking 144 ships in June 1942, their deadliest month in the entire war.[36]

The security of Taiwan's energy transport is even more tenuous in the liquefied natural gas (LNG) and liquefied petroleum gas (LPG) sectors. Following world energy market trends, the use of LNG and LPG is rapidly expanding in Taiwan. Over six million tonnes of LNG is imported annually (equating to over nine billion cubic meters of natural gas, once re-gasified), and demand is projected to increase as more industries shift to cleaner-burning fuels.[37] To meet this import demand there is currently only one LNG tanker in the ROC-owned merchant fleet—the Liberian-flagged M/T *Golar Mazo* is under long-term contract to supply LNG to Taiwan. The ship is co-owned by Golar LNG Company and CPC (a minority owner, with a 40 percent share).[38] The *Golar Mazo* is able to meet only 23 percent of the import demand; the remainder of the LNG shipping capacity is made up by foreign-owned LNG tankers.

Although the lack of additional ROC-owned LNG tankers represents a strategic vulnerability, it is striking that the *Golar Mazo* alone is able to meet roughly a quarter of the import demand of Taiwan. Consequently, on one hand, only four average-sized LNG tankers are required to be operating at any one time to meet Taiwan's total import demand. This is primarily due to the relatively close

TABLE 3
ROC MERCHANT FLEET CAPACITY FOR CRITICAL CARGOES: ALL ROC-OWNED SHIPS

	Annual Import Demand (Mt)	Avg. Monthly Import Demand (Mm^3)	Fleet Cargo Capacity (Mm^3)[a]	Max. Possible Cargo Import Cycles per Month[b]	Max. Possible Cargo Import Volume per Month (Mm^3)	Monthly Import Surplus (Deficit) (Mm^3)	Monthly Import Capacity as % of Demand
Crude oil	52.25	5.05	6.34	0.84	5.33	0.28	105
Liq. natural gas (LNG)	6.40	1.30	0.14	2.10	0.29	-1.01	23
Liq. petroleum gas (LPG)	0.89	0.14	0.19	0.84	0.16	0.02	114
Dry bulk cargoes (total)	69.22	7.08	17.05	1.12	19.10	12.02	270
Coal	60.37	6.04	-	-	-	-	-
Wheat grain	1.29	0.14	-	-	-	-	-
Corn	5.10	0.63	-	-	-	-	-
Soybeans	2.46	0.27	-	-	-	-	-

Sources: All ship capacity data derived from Lloyd's Maritime Intelligence Unit, *Lloyd's Maritime Directory 2006,* pp. 978–93*;* and Lloyd's Register–Fairplay Ltd., *Register of Ships 2006–2007*. Import demand data from the Taiwan Bureau of Energy, "Energy Balance Sheet 1-26.94"; and Council of Agriculture, "Food Balance Sheet."

Note: Mt = million metric tonnes. Mm^3 = million cubic meters.

a. Total dry bulk capacity includes bulk cargo capacity of applicable general cargo ships.

b. Based on average transit cycle time to primary import sources for each commodity. Assumes two-day load/unload time in port and 14-knot average transit speed.

geographic proximity of natural gas exporters to Taiwan; 58 percent of Taiwan's natural gas imports in 2004 came from Indonesia and 40 percent from Malaysia.[39] Where the distances to crude oil and LPG suppliers in the Middle East are such that each VLCC and LPG tanker can make less than one round-trip delivery to Taiwan per month, each LNG tanker can complete an average of 2.1 round trips per month.[40] On the other hand, the large proportion of Taiwan's LNG trade represented by each tanker makes them particularly high-value targets. LNG tanks worldwide are in high demand and scarce; the loss of any would quickly produce detrimental downstream effects on Taiwan's electrical system, which relies on natural gas for 23 percent of its total installed generation capacity.[41]

Although smaller than LNG in total volume consumed, liquefied petroleum gas also plays a key role in meeting Taiwan's energy needs. Unlike LNG, most of Taiwan's LPG supply goes to residential and commercial markets. (There are roughly ten thousand LPG-fueled vehicles on Taiwan's roads.)[42] To supply this demand there are six LPG tankers in the ROC-owned fleet, none of which fly the Republic of China flag. Despite its small numerical size, this fleet of six LPG tankers under normal circumstances meets 114 percent of Taiwan's monthly LPG import demand, providing a limited margin of excess capacity.

As with the LNG sector, the vulnerabilities for Taiwan in the LPG tanker sector arise from the small number of its ships in the trade, the fact that all are

TABLE 4
ROC MERCHANT FLEET CAPACITY FOR CRITICAL CARGOES: ROC-FLAGGED SHIPS ONLY

	Annual Import Demand (Mt)	Avg. Monthly Import Demand (Mm^3)	Fleet Cargo Capacity (Mm^3)[a]	Max. Possible Cargo Import Cycles per Month[b]	Max. Possible Cargo Import Volume per Month (Mm^3)	Monthly Import Surplus (Deficit) (Mm^3)	Monthly Import Capacity as Pct. of Demand
Crude oil	52.25	5.05	1.84	0.84	1.55	-3.50	31
Liq. natural gas (LNG)	6.40	1.30	0.00	2.10	0.00	-1.30	0
Liq. petroleum gas (LPG)	0.89	0.14	0.00	0.84	0.00	-0.14	0
Dry bulk cargoes (total)	69.22	7.08	2.62	1.12	2.93	-4.15	41
Coal	60.37	6.04	-	-	-	-	-
Wheat grain	1.29	0.14	-	-	-	-	-
Corn	5.10	0.63	-	-	-	-	-
Soybeans	2.46	0.27	-	-	-	-	-

Sources: All ship capacity data derived from Lloyd's Maritime Intelligence Unit, *Lloyd's Maritime Directory 2006,* pp. 978–93; and Lloyd's Register–Fairplay Ltd., *Register of Ships 2006–2007*. Import demand data from the Taiwan Bureau of Energy, "Energy Balance Sheet 1-26.94"; and Council of Agriculture, *Food Supply & Utilization Annual Report 2003*.

Note: Mt = million metric tonnes. Mm^3 = million cubic meters.

a. Total dry bulk capacity includes bulk cargo capacity of applicable general cargo ships.

b. Based on average transit cycle time to primary import sources for each commodity. Assumes two-day load/unload time in port and 14-knot average transit speed.

foreign-flagged, and the disproportionate capacity of individual vessels. Two of the LPG tankers operated by the Formosa Plastics Marine Company represent together 81 percent of the fleet's cargo capacity and are Taiwan's only vessels suited for efficient long-haul deliveries from LPG suppliers in the Middle East.[43]

Coal is the third pillar of Taiwan's imported energy supply. Surpassing natural gas, coal provides 29 percent of the generation capacity of Taiwan's electrical power grid, accounting for 76 percent of the 60.37 million tonnes of coal Taiwan imported in 2005.[44] Indigenous coal production ceased in 2001; Taiwan now purchases 10 percent of total coal imported worldwide, behind only the European Union (30 percent as a whole) and Japan (25 percent).[45] Of some strategic concern in a China-Taiwan scenario would be the fact that a plurality of Taiwan's imported coal supply comes from mainland China (41 percent in 2004), the remainder primarily from Indonesia (32 percent) and Australia (21 percent). This concern is offset by the overall strength of the global coal supplies; such large coal producers/exporters as Australia, Russia, Indonesia, and the United States could easily supply Taiwan's demand if supplies from the mainland were cut.[46]

When assessing the ability of Taiwan's merchant fleet to sustain coal imports in a crisis, however, the entire range of dry bulk imports must be considered. The same dry bulk carriers used to transport coal to Taiwan will also be in demand to carry critical agricultural bulk cargoes, especially wheat grain, corn products, and

soybeans. Whereas other food imports, such as beef, chicken, fruits, vegetables, and processed foods, are typically containerized, most cereals are transported in loose bulk form. Taiwan depends on considerable quantities of the latter, and they would compete with coal for dry bulk import capacity.

Food security is also a national security concern. Like energy, a substantial proportion of Taiwan's basic food supplies is imported and could be threatened in a China-Taiwan conflict. Changing demographics on traditional family farms and the opening of domestic agricultural markets to foreign imports following Taiwan's WTO membership have caused considerable shifts in food import-export trade patterns and, in turn, a review of Taiwan's food security and agricultural policies.[47]

Taiwan was self-sufficient in rice, fruits, vegetables, and meat through 2003, but the long-term health of these sectors is not assured; the farming population is shrinking, and trade protections are being dropped in accordance with WTO regulations. Furthermore, less than 1 percent of the demand for wheat and soybeans is met by domestic production. Domestic corn production is sufficient for human consumption but meets less than 1 percent of the nearly five million tonnes required for livestock feed. To make up domestic shortfalls, 5.10 million tonnes of corn, 2.46 million tonnes of soybeans, and 1.29 million tonnes of wheat grain are imported annually.[48] The United States is the primary supplier of these commodities, providing 99 percent of the corn cereals, 74 percent of the soybeans, and 71 percent of the wheat grain imported to Taiwan as of June 2005. Wheat from Australia (27 percent) and soybeans from Brazil (26 percent) make up the majority of the remainder.[49]

In order to support price stability and enhance food security, the ROC government regularly buys stocks of key agricultural products. The exact sizes of these stockpiles vary with market prices, but on average the government-held stocks roughly equate to a 4.5-month supply of rice, a 3.4-month supply of wheat, and a 1.8-month supply of corn.[50]

Although critical to sustaining Taiwan's food supply, the combined 0.74 million tonnes of imported corn, soybeans, and wheat each month is small compared to the five million tonnes of coal per month that would compete for shipping during a crisis scenario. Fortunately, the dry bulk sector that must carry the combined load is one of relative strength for the ROC merchant marine. It is the second largest by number of total ships owned (186) and leads the way in combined deadweight, at 13.64 million tonnes. It is largely a new and modern fleet, and it could readily handle the combined 5.77 million tonnes per month of combined coal and agricultural commodities if fully available in a crisis (see table 3). In fact, thanks to the short average delivery cycle times resulting from the availability of coal in Indonesia and both wheat and coal in Australia, total import delivery capacity is nearly triple the domestic monthly demand for

critical coal and agricultural bulk products. This large capacity of the total dry bulk fleet allows a significant margin for losses. Further, the total ROC-owned dry bulk fleet is sized to accommodate a wide variety of import and export dry bulk products that would not be considered vital in a China-Taiwan conflict. Bulk commodities such as iron ore and coke imports for steel production and exported quarry products like sand, gravel, and limestone aggregate are vital to the long-term health of the Taiwan economy but not critical to basic survival.[51]

Optimism arising from excess capacity in the dry bulk sector, however, must be tempered by realism. First, limiting the dry bulk fleet to critical cargoes would require convincing (or coercing) owners with vested financial interest in non-critical cargoes (such as China Steel Express Corporation, the shipping subsidiary of a major Taiwanese steel manufacturer) to shift away from them for the greater good of the island's populace. A second area of risk is inherent in flags of convenience, as shown in tables 2 and 4. Were ROC shipowners with foreign-flagged vessels to abandon Taiwan, the dry bulk capacity margin would vanish. In a worst-case scenario, the ROC-flagged dry bulk fleet could itself hope to meet less than half (41 percent) of Taiwan's import demand. This highlights the influence that the decisions of the ROC shipowners with foreign-flagged vessels would have on the ability of Taiwan to endure a blockade.

MARITIME TRADE INFRASTRUCTURE VULNERABILITIES

The concerns for Taiwan's merchant shipping industry's ability to sustain the nation in a time of war are not limited to the ships themselves. Its shore-based infrastructure is also subject to question, in regard to geography and redundant capacity. The concerns regarding geography are fairly evident and have been well covered elsewhere.[52] Taiwan has seven major ports: Kaohsiung, Keelung, Suao, Taipei, Taichung, Hualien, and Anping. Kaohsiung handles 67 percent of the total cargo volume, with Keelung second at 15 percent.[53] Kaoshiung is also the home of Taiwan's only shipyard capable of dry-docking large, deep-draft vessels, as well as of its most productive oil refinery.[54] The disproportionate concentration of facilities at Kaohsiung makes it an obvious target of any Chinese blockade, and the shallow-water bathymetry of its approaches would favor PLAN submarines and mines over Taiwan's ASW and mine clearance.

The infrastructure limitations become even more evident with regard to specific market sectors. For containerized commodities, the ports of Keelung, Taipei, and Taichung, with substantial container-handling capacity, could relieve pressure on Kaohsiung, but only Keelung and Taichung are deep enough (i.e., more than fifteen meters) to handle the largest modern containerships. None of the major container ports are on Taiwan's east coast, where they could be better sheltered from PRC blockade forces. In the energy sector, Chinese Petroleum's Ta-Lin-Pu

and Sha Lung offshore oil terminals are the only facilities capable of discharging VLCCs directly to shore, and Yungan has currently the country's only LNG receiving terminal.[55] As in the container sector, none of these major terminals are on Taiwan's east coast, and a single west-coast port, Taichung, handles a disproportionately high volume of Taiwan's coal imports (45 percent in July 2006).[56]

The equipment at Taiwan's ports poses vulnerability concerns as well. As a result of growth in the size of ships and an overall maritime trade industry push for greater efficiency, few of today's container or dry bulk carriers are capable of loading or unloading themselves. Only two of Taiwan's containerships with capacities over two thousand TEUs can do so, and only 42 percent of the ROC-owned dry bulk carriers are equipped with cranes or derricks. This fraction drops to only 6 percent for ROC-flagged bulk carriers alone. As is typical of the maritime industry worldwide, only smaller general-cargo carriers that serve local and regional feeder routes are equipped with their own cranes or derricks. Seventy-eighty percent of Taiwan's 133 general-cargo carriers are self-load/unload capable, but they are small, with a combined capacity of only 10,977 TEUs (roughly equivalent to two large containerships).[57]

All this makes the shore-based cargo-handling equipment an attractive target for air or ballistic-missile attack. Furthermore, much of the port terminal equipment is highly specialized and difficult to replace or work around. Container-handling cranes are mammoth pieces of machinery, and only they can reach efficiently across the thirty-to-forty-meter beams of large containerships. The same applies to sophisticated bulk cargo–handling gear, which can unload coal or the like at rates of up to two thousand tonnes per hour.[58] Unloading large container and bulk cargo ships with ad hoc, temporary cranes following an attack on port facilities would produce substantial delays, making ships more vulnerable to attack in port and slowing the flow of vital supplies into the country. Likewise, only the terminal at Yungan has the specialized equipment and storage facilities necessary for re-gasifying imported LNG, making it another tempting target for air strikes. Destruction of such key terminals would make the ability of Taiwan's merchant ships to supply them irrelevant.

POLICY IMPLICATIONS FOR TAIPEI, TOKYO, AND WASHINGTON

For the People's Republic of China, hitting a few of Taiwan's merchant ships, even nonlethally, may be enough to achieve the desired effect. The delays incurred in nursing damaged merchant ships into port (possibly under fire) and making repairs could remove enough capacity from service to have serious repercussions. Also, the spectacle of damaged, burning ships could give pause to owners or flag states of foreign-registered vessels; while Taiwan's energy and food import needs could theoretically be met by the total fleet of ROC-owned

shipping, it is not realistic to expect that this full capacity would be available in a China-Taiwan conflict. Any losses in tanker or dry bulk throughput capacity, whether due to actual loss of or damage to ships, their removal from the market by wavering resolution among their owners or crews, or disablement of port facilities will have severe consequences for Taiwan's ability to sustain the inflow of critical energy and food supplies.

Taiwan, then, occupies a tenuous position with respect to its merchant marine. Its policy makers would do well to continue and support efforts to ease regulatory and economic barriers to the expansion of the ROC-flagged merchant fleet. Such efforts might include education and training initiatives to increase the pool of native merchant mariners, as well as subsidies to encourage local shipowners to register under the Taiwan flag. Admittedly, the latter would be politically difficult both home and abroad, since it is often viewed as "corporate welfare" and would undercut WTO attempts to reduce shipping industry subsidies.[59]

Secondly, Taiwan might develop contingency plans for increasing the capacity of ROC-controlled shipping in an emergency. Relying on Taiwan's financial reserves to charter or purchase vessels from the international market has been proposed.[60] The former, however, is not a simple or guaranteed solution; vessels available for charter in peacetime may not be when tensions rise. This leaves outright purchase as an option, but as shipping market conditions fluctuate, ships of types that are particularly useful for national security may not be available in sufficient quantity when needed. Finally, since the Chinese would most likely control the timing of crisis escalation, they would be in position to charter or buy up available shipping before Taipei could do so.[61]

More realistically, Taiwan could increase the cargo throughput capacity of its east coast ports. Possible approaches include expansion and diversification of facilities at existing harbors, as well as the construction of additional artificial harbors like the new port at Ho-Ping.[62] Such improvements would, of course, entail making sure that the road and rail infrastructure is sufficient to move cargo inland efficiently from east coast ports should they become of primary importance during a conflict.

Relatedly, nontraditional and improvised methods for unloading cargo from merchant ships could be developed and rehearsed. They might involve provisions for ad hoc pierside facilities or small, crane-equipped ships for lightering larger deep-draft vessels that cannot enter Taiwan's small east coast ports. Likewise, the ability to salvage cargo from damaged vessels stranded offshore should not be underemphasized. Taipei might also investigate containerization of petroleum products and dry bulk cargoes. In that way, in extremis, the strength of the ROC containership fleet could be leveraged to alleviate strain on the tanker and dry bulk carrier sectors.

Finally, it would be important to ensure that plans for the naval control and protection of shipping are kept current and periodically exercised. These ends can be served by convoy exercises and regular hydrographic mapping of safety corridors in and out of ROC ports, in order to minimize the time required for mine-countermeasure efforts in an actual conflict.

Of course, it is by no means required or certain that either Japan or the United States would become directly involved in a China-Taiwan conflict, but at a minimum both nations would need to consider the larger impact on merchant shipping in the region. For instance, in view of the potential for spillover into a larger regional conflict, any U.S.-Japanese response to a Chinese blockade would necessarily involve naval cooperation and guidance for shipping (NCAGS) in the entire East Asian theater. Preparation for such a prospect is a lofty challenge, requiring extensive intergovernment and interagency coordination, since the existing NCAGS structure in the Pacific is less mature than in traditional NATO operating areas.[63] Nonetheless, it could capitalize upon the post-9/11 cooperation in multinational maritime domain awareness, as well as upon the NCAGS framework developed through Pacific and Indian Ocean Shipping Working Group's BELL BUOY exercises.[64]

A blockade is just one of the numerous coercive options, in a continuum of force, that the People's Republic of China could employ against Taiwan. It can exploit vulnerabilities of Taiwan's maritime trade industry to force capitulation without an all-out attack that would be risky in itself and might turn the island into rubble. But as others have concluded, the question ultimately boils down to Taiwan's will to resist.[65] If a blockade triggers a spirit of nationalism and resistance on Taiwan, the latent strengths of the ROC merchant marine could quickly emerge and validate Vice Admiral Ko Tun-hwa's declaration that "unless each farmer's house is bombed, there will still be enough vegetables, chickens, eggs, and pigs to live on. All of the buses and cars may be forced to stop running due to shortage of fuel, but people can still travel on foot or on bicycles, and the buses can still be towed by water buffalo or horses."[66]

But there is an equal chance that the sight of the first tanker burning off Kaohsiung will exacerbate Taiwan's sense of vulnerability, tear rifts in national identity and political allegiance, and incite panic on the island.[67] This possibility alone makes a blockade a completely viable option for the PRC. Furthermore, in the age of "CNN warfare," the sight of merchant ships burning may be enough to prevent shipowners from allowing their ships to enter the war zone, or, even more significantly, deter the American public from redeeming Taiwan's hope that U.S. forces will come riding over the horizon to their rescue.

NOTES

1. See David Shambaugh, *Modernizing China's Military* (Berkeley: Univ. of California Press, 2002), pp. 320–22, and "A Matter of Time: Taiwan's Eroding Military Advantage," *Washington Quarterly* 23, no. 2 (Spring 2000), pp. 119–33; Bernard D. Cole, *The Great Wall at Sea* (Annapolis, Md.: Naval Institute Press, 2001), pp. 154–58, and *Taiwan's Security* (New York: Routledge, 2006), pp. 32–51; Michael D. Swaine, *Taiwan's National Security, Defense Policy, and Weapons Procurement Process* (Santa Monica, Calif.: RAND, 1999), pp. 57–58; Martin L. Lasater, ed., *Beijing's Blockade Threat to Taiwan* (Washington, D.C.: Heritage Foundation, 1986); Eric McVadon, "PRC Exercises, Doctrine, and Tactics toward Taiwan: The Naval Dimension," in *Crisis in the Taiwan Strait,* ed. James R. Lilley and Chuck Downs (Washington, D.C.: National Defense Univ. Press, 1997), pp. 249–76; Michael A. Glosny, "Strangulation from the Sea? A PRC Submarine Blockade of Taiwan," *International Security* 28, no. 4 (Spring 2004), pp. 125–60; Thomas J. Christensen, "Posing Problems without Catching Up: China's Rise and Challenges for U.S. Security Policy," *International Security* 25, no. 4 (Spring 2001), pp. 5–40; Michael O'Hanlon, "Why China Cannot Conquer Taiwan," *International Security* 25, no. 2 (Fall 2000), pp. 51–86; Lyle Goldstein and William Murray, "Undersea Dragons," *International Security* 28, no. 4 (Spring 2004), pp. 161–96; and Andrew Erickson, Lyle Goldstein, and William Murray, "Chinese Mine Warfare: The PLA Navy's 'Assassin's Mace,'" manuscript, Naval War College, Newport, R.I., April 2006.

2. For a full discussion on global maritime trade and its strategic significance and vulnerabilities, see Sam J. Tangredi, ed., *Globalization and Maritime Power* (Washington, D.C.: U.S. Government Printing Office, 2002); and Andrew Forbes, ed., *The Strategic Importance of Seaborne Trade and Shipping: A Common Interest of Asia Pacific* (Canberra: Commonwealth of Australia, 2003).

3. United Nations Conference on Trade and Development [hereafter UNCTAD], *Review of Maritime Transport 2004* (New York: United Nations, 2004), p. 100, and *Review of Maritime Transport 2005* (New York: United Nations, 2004), p. 76. For container specifications, see "Equipment—Container Specifications," Evergreen Marine Corporation, www.evergreen-marine.com/tei1/jsp/TEI1_Containers.jsp.

4. Peter V. Hall, "'We'd Have to Sink the Ships': Impact Studies and the 2002 West Coast Port Lockout," *Economic Development Quarterly* 18, no. 4 (November 2004), pp. 354–67.

5. See Glosny, "Strangulation from the Sea?" p. 148.

6. Martin S. Navais and E. R. Hooton, *Tanker War: The Assault on Merchant Shipping during the Iran-Iraq Crisis, 1980–1988* (London: I. B. Tauris, 1996), p. 184.

7. See ibid., pp. 86, 127; John Newton, *A Century of Tankers: The Tanker Story* (Oslo: InterTanko, 2002), pp. 100–108; and Mike Ratcliffe, *Liquid Gold Ships: A History of the Tanker 1859–1984* (London: Lloyd's of London, 1985), pp. 152–66.

8. See Glosny, "Strangulation from the Sea?" p. 148.

9. Martin Doughty, *Merchant Shipping and War: A Study in Defense Planning in Twentieth Century Britain* (London: Royal Historical Society, 1982), p. 20. Causes for high wartime freight rates were hotly contested in Britain, but Doughty concludes that "profiteering was rather forced upon the shipowners than engineered by them, although, naturally, they did not resist this situation." Also see J. Russell Smith, *Influence of the Great War upon Shipping* (New York: Oxford Univ. Press, 1919), pp. 153–84, esp. 156–59.

10. See Glosny, "Strangulation from the Sea?" pp. 130, 136–37 (including note 52). Glosny uses the peacetime volume of 1,250 ships entering or departing ROC ports per week (5,000 ships/month) throughout his analysis. This is a fair estimate of normal *peacetime* shipping volume, as 3,357 vessels entered and 3,341 vessels departed ROC ports in July 2006. See ROC Ministry of Transportation and Communications [hereafter MOTC] Department of Statistics, *Monthly Statistics of Transportation and Communications,* "Table 6-2: Incoming and Outgoing Vessels in Harbors by

Nationality in Taiwan Area—July 2006," available at www.motc.gov.tw/en/.

11. Lloyd's Maritime Intelligence Unit, *Lloyd's Maritime Directory 2006* (London: Informa UK, 2006), p. 23. Ranked by owner nationality, Taiwan is tenth in the world by deadweight (page 22).
12. UNCTAD, *Review of Maritime Transport 2005,* p. 52. Deadweight data from *Lloyd's Maritime Directory 2006,* pp. 19–22. A tonne (t) is a metric ton (1 tonne = 1,000 kg = 0.98 long tons). Metric units are throughout this article unless otherwise noted.
13. The 767 vessels under ROC ownership correspond to the 766 vessels listed in *Lloyd's Maritime Directory 2006,* pp. 978–93, plus the M/T *Golar Mazo.* The *Golar Mazo* is only 40 percent owned by ROC-based interests but is included due to its significance as an LNG tanker involved in ROC trade.
14. *Lloyd's Maritime Directory 2006,* pp. 978–93. The "registered owner" is the individual or corporation listed on the ship's registration papers, not necessarily the ultimate owner of the vessel. See *Lloyd's Maritime Directory 2006,* p. 4, and Lloyd's Register—Fairplay Ltd., *Registry of Ships 2006–2007* (Surrey, U.K.: 2006), p. iv.
15. *Lloyd's Maritime Directory 2006,* pp. 978–93.
16. Article 25 of the ROC National Defense Act (2003) allows for the "requisition of private assets and their operators" in support of defense mobilization. Also see articles 20 and 29 of the ROC Shipping Law (1981, amended 2002) and the ROC Regulations for Administering Vessel Carriers and Vessel Chartering Operators (1962, amended 2002). For full texts, see ROC Ministry of Justice, *Laws and Regulations Database of the Republic of China,* available at law.moj.gov.tw/eng/.
17. See the ROC Seafarer's Law (1999, amended 2002) and Employment Service Act, ROC Ministry of Justice, *Laws and Regulations Database of the Republic of China,* available at law.moj.gov.tw/eng/.
18. The Philippines, Indonesia, Turkey, China, and India supply 60 percent of the world's merchant mariners. See UNCTAD, *Review of Maritime Transport 2004,* p. 111.
19. Henry S. Marcus et al., *Increasing the Size of the Effective United States Control Fleet* (Cambridge, Mass.: MIT Press, 2002), pp. 14–19, and Newton, *A Century of Tankers,* pp. 106–107.
20. For crew nationality on British-controlled shipping in World War II, see C. B. A. Behrens, *Merchant Shipping and the Demands of War* (London: Her Majesty's Stationery Office [hereafter HMSO], 1955), pp. 157, 179–80.
21. See ibid., pp. 154–77, and Robert Earle Anderson, *The Merchant Marine and World Frontiers* (New York: Cornell Maritime, 1945), pp. 102–10.
22. "Water Transportation," Ministry of Transportation and Communications, www.motc.gov.tw/en/.
23. Cheng-Chi Chung and Cherng-Chwan Hwang, "Analysis on Vessel Registration and Operational Performance of Bulk-Shipping Firms," *Proceedings of the Eastern Asia Society for Transportation Studies* 5 (2005), pp. 633–36. For more on the dual-classification issue, see "ROC Regulations for Supervising Classification Societies" (1963, amended 1976), Ministry of Justice, *Laws and Regulations Database of the Republic of China,* law.moj.gov.tw/eng/. For general information on ship classification issues, see "IACS," International Association of Classification Societies, www.iacs.org.uk/index1.htm.
24. *Lloyd's Maritime Directory 2006,* pp. 981–82. For a breakdown of total vessels operated (rather than owned) by ROC-based interests, see Lloyd's Register—Fairplay Ltd., *World Shipping Directory* 2006–2007 (Exeter, U.K.: 2006), pp. 1-701 to 1-702.
25. UNCTAD, *Review of Maritime Transport 2005,* p. 64.
26. *Lloyd's Maritime Directory 2006,* pp. 981–82.
27. A fourth nuclear power plant is under construction. Its two reactors are expected to become operational in 2009 and 2010. See "Facilities Development and Construction," Taiwan Power Company, www. taipower.com.tw/indexE.htm.
28. U.S. Energy Dept., "Country Analysis Briefs: Taiwan," Energy Information Administration, www.eia.doe.gov/emeu/cabs/taiwan.html.
29. Petroleum Administration Law, October 2001, art. 24. For full text, see the Ministry of

Justice, *Laws and Regulations Database of the Republic of China.* For further discussion, see Masahiro Atsumi, *Taiwan's Energy Security Issues: Domestic Energy Policies and Transporting Energy by Sea*, IIPS Policy Paper 300E (Tokyo: Institute for International Policy Studies, November 2003). Of note, refiner-held petroleum reserves are a common practice in Asia. Japan and South Korea follow similar regulatory practices.

30. Taiwan Bureau of Energy, "Laws and Regulations," Ministry of Economic Affairs, www.moeaec.gov.tw/English/laws.asp.

31. For discussion of coal stockpile, see William Chandler, *Taiwan Electric Power Futures,* Report PNWD-3123 (Richland, Wash.: Pacific Northwest National Laboratory, December 2001), p. 4. For natural gas, see Michael Watson, ed., *Gas Storage in the APEC Region: Development of Commercial Structure* (Tokyo: Asia Pacific Energy Research Centre, 2002), pp. 36–37.

32. Taiwan Bureau of Energy, "Petroleum," Ministry of Economic Affairs, *Energy Situation in Taiwan, ROC,* www.moeaboe.gov.tw/ePublication/; and U.S. Energy Dept., "Country Analysis Briefs: Taiwan."

33. FPC's vessels operate under the Formosa Plastics Marine Corporation, a subsidiary of the Formosa Plastics Group. See "Organization and Operational Structure," Formosa Plastics Group, www.fpg.com.tw/html/eng/org.htm.

34. *Lloyd's Maritime Directory 2006,* pp. 978–93.

35. The limitation on VLCCs entering port is not unique to Taiwan. Very few ports are deep enough to accommodate a fully laden VLCC. For detailed description of ROC port facilities, see Lloyd's Register—Fairplay Ltd., *Ports and Terminals Guide 2005–2006* (Exeter, U.K.: 2004), pp. 4-1 to 4-17.

36. S. W. Roskill, *The War at Sea 1939–1945* (London: HMSO, 1956), vol. 2, pp. 104, 485. German U-boats accounted for 144 Allied and neutral ships lost in June 1942, totaling 700,235 gross tonnes. The average ROC-owned VLCC is 140,000 grt each. For additional information on T2 tankers of World War II, see Newton, *A Century of Tankers,* pp. 80–82, and *The T2 Tanker Page,* www.t2tanker.org/.

37. Allison Ball, Jane Mélanie, and Karen Schneider, *Natural Gas in Taiwan: Prospects for LNG*, Australian Bureau of Agricultural and Resource Economics eReport 06.1 (Canberra: Commonwealth of Australia, 2006), available at www.abareconomics.com.

38. See "Vessel Information," Golar LNG, www.golar.com/Vessel_Info.html; and Chinese Petroleum Corporation, *Chinese Petroleum Corp. 2006* (Taipei: 2006), p. 40, corporate annual report available at www.cpc.com.tw.

39. Taiwan Bureau of Energy, "Natural Gas," Ministry of Economic Affairs, *Energy Situation in Taiwan, ROC*, www.moeaboe.gov.tw/ePublication/.

40. The monthly delivery cycle used is based on time-distance calculation along normal trade routes. These results are supported by the fact that the M/V *Golar Mazo* made twenty-eight round-trip deliveries between Indonesia and Taiwan in 2005. See *Chinese Petroleum Corp. 2006,* p.40.

41. Natural gas–fired power plants consumed 75 percent of the total natural gas supply in Taiwan in 2004. Ninety-two percent of the total natural gas supply (9.78 billion cubic meters) is imported; 8 percent is indigenously produced. See Taiwan Bureau of Energy, "Natural Gas."

42. The goal is to increase the number of LPG-fueled cars in Taiwan by eighteen thousand over the next three years. See ROC Ministry of the Interior, "EPA Announces Subsidy of NT$30,00 for Car Owners," available at www.moi.gov.tw/english/.

43. For further data on Taiwan's LPG supplies, see "Asia, North America Lead Growth of NGL, LPG Trade," PennWell Petroleum Group, www.pennwellpetroleumgroup.com/Articles/; U.S. Energy Dept., "Country Energy Data Report," Energy Information Administration, www.eia.doe.gov/emeu/world/country/cntry_TW.html.

44. For a breakdown of electrical power generation capacity in Taiwan through 2004, see Taiwan Bureau of Energy, "Electricity," Ministry of Economic Affairs, *Energy Situation in Taiwan, ROC*, www.moeaboe.gov.tw/ePublication/. For more recent (2005) statistics on volume and utilization of coal imports, see Taiwan Bureau of Energy, "Energy Balance Sheet

1-26.94 (2005)," Ministry of Economics, www.moeaec.gov.tw/ePublication/energy_balance/main/default.htm.

45. UNCTAD, *Review of Maritime Transport 2005,* p. 13.

46. U.S. Energy Dept., *Annual Energy Outlook 2006* (Washington, D.C.: Energy Information Administration, 2006), pp. 98–102, and *International Energy Outlook 2006* (Washington, D.C.: Energy Information Administration, 2006), pp. 51–61.

47. Beatrice Knerr, "Food Security versus WTO Membership in Taiwan," School of Oriental and African Studies, 2005, www.soas.ac.uk/taiwanstudiesfiles/EATS2006/abstract/panel5knerrabstract.pdf.

48. All food commodity data derived from Council of Agriculture, Executive Yuan, ROC, "Food Balance Sheet—2003," *Food Supply and Utilization Annual Report,* eng.coa.gov.tw/./list.php?catid=9351, and "Quantity of Agricultural Imports," *Monthly Report of Agriculture,* eng.coa.gov.tw/. The *Food Supply and Utilization Annual Report* of 2003 is the last comprehensive report available from the Taiwan Council of Agriculture that breaks down imported agricultural cereal product by individual commodities. Its statistics are consistent with conservative monthly combined cereal import quantities in later reports and are used here in all calculations.

49. Council of Agriculture, Executive Yuan, ROC, "Top 10 Agricultural Import Product by Value and the Supplying Countries," June 2005, *Monthly Report of Agriculture,* eng.coa.gov.tw/.

50. Calculations based on stock and consumption data in U.S. Agriculture Dept., *Taiwan Grain and Feed Annual 2006*, Agricultural Service Grain Report TW6013 (Washington, D.C.: 2006), available at www.fas.usda.gov/grainfiles/200606/146197902.pdf.

51. For a summary of Taiwan's other import and export commodities, see Government Information Office, Republic of China (Taiwan), "Economy" and "Transport and Communications," December 2005, *Taiwan Yearbook 2005,* www.gio.gov.tw/taiwan-website/5-gp/yearbook/.

52. See Michael McDevitt, "The Security Situation across the Taiwan Strait," *Journal of Contemporary China* (August 2004), pp. 411–25, esp. 411–13; Shambaugh, "A Matter of Time," pp. 122–23; and Glosny, "Strangulation from the Sea?" pp. 129–30.

53. Government Information Office, "Transport and Communications."

54. For dry-dock data, see Lloyd's Register—Fairplay Ltd., *Ports and Terminals Guide 2005–2006,* pp. 4-1 to 4-17. For oil refinery capacities, see *Chinese Petroleum Corp. 2006,* pp. 14–15; and Taiwan Bureau of Energy, "Petroleum."

55. Additional capacity for discharging VLCCs is being built at Mailiao (also on Taiwan's west coast), for the oil refinery there (Lloyd's Register—Fairplay Ltd., *Ports and Terminals Guide 2005–2006,* pp. 4–13). Additionally, a second LNG receiving terminal is being built by the CPC at the port of Taichung; it is to reach full operation by the end of 2009 (*Chinese Petroleum Corp. 2006,* pp. 22–23).

56. MOTC Department of Statistics, *Monthly Statistics of Transportation and Communications,* "Table 6-20: Volume of Cargo Handled by Commodities and Harbors in Taiwan Area—July 2006," www.motc.gov.tw/en/.

57. All statistical data in this paragraph is based on analysis of *Lloyd's Maritime Directory 2006,* pp. 981–82, and Lloyd's Register—Fairplay Ltd., *Register of Ships 2006–2007.*

58. Lloyd's Register—Fairplay Ltd., *Ports and Terminals Guide 2005–2006,* pp. 4-1 to 4-17. The 2,000-tonne/hour unloading capacity cited is for the coal handling gear at berths 101 and 102 in Taichung Harbor.

59. For WTO shipping issues, see UNCTAD, *Review of Maritime Transport 2005,* pp. 83–84; and "Maritime Transport" and associated links, World Trade Organization, www.wto.org/english/tratop_e/serv_e/transport_e/transport_maritime_e.htm.

60. See Glosny, "Strangulation from the Sea?" pp. 148–49.

61. This was pointed out by John F. Tarpey over twenty years ago at a roundtable discussion held by the Heritage Foundation regarding the PRC blockade threat. With China's sizeable economic growth since then, this possibility has only increased. See Lasater, *Beijing's Blockade Threat to Taiwan,* p. 22.

62. The artificial harbor at Ho-Ping is twenty nautical miles north of Hualien on Taiwan's east coast. It opened in 2000. See Lloyd's Register—Fairplay Ltd., *Ports and Terminals Guide 2005–2006,* pp. 4-2 to 4-3.

63. For U.S. and NATO NCAGS doctrine and organization, see U.S. Navy Dept., *Naval Control and Guidance for Shipping (NCAGS),* NTTP 3-07.12 (Washington, D.C.: 24 October 2003); and North Atlantic Treaty Organization, *Naval Control and Guidance for Shipping Manual (NCAGS),* ATP-2(B), vol. 1 (Brussels: NATO Standardization Agency, May 2004).

64. See the PACIOSWG website, www.pacioswg.org, and Bill Hoogendoorn, "The Protection of Seaborne Trade: An Australian Perspective," in *The Strategic Importance of Seaborne Trade and Shipping: A Common Interest of Asia Pacific,* ed. Andrew Forbes (Canberra: Commonwealth of Australia, 2003), pp. 185–90.

65. See Glosny, "Strangulation from the Sea?" and Cole, *Taiwan's Security*, pp. 167–68.

66. Ko Tun-hwa, as quoted in Lasater, *Beijing's Blockade Threat to Taiwan,* p. 12. Vice Adm. Ko Tun-hwa served as the ROC's vice minister of national defense and deputy general chief of staff.

67. For more on divisions in ROC public opinion, will to resist, and rifts in civil-military relations, see Richard C. Bush, *Untying the Knot: Making Peace in the Taiwan Strait* (Washington, D.C.: Brookings Institution, 2005), pp. 122–28; Cole, *Taiwan's Security,* pp. 135–51, 171–72; and Michael D. Swaine, *Deterring Conflict in the Taiwan Strait: The Successes and Failures of Taiwan's Defense Reform and Modernization Program,* Carnegie Paper 46 (Washington, D.C.: Carnegie Endowment for International Peace, 2004).

DUTY AT ALL COSTS

George M. Clifford III

In his *Dereliction of Duty,* H. R. McMaster describes the Joint Chiefs of Staff during Lyndon Johnson's presidency as the "five silent men" who cooperated with Johnson in deceit instead of speaking the truth about what was happening in Vietnam. McMaster proffers several explanations as to why these officers remained silent: the unwritten code of the military professional to stay out of politics; loyalty to their commander in chief; loyalty to their services; and the belief that they could achieve more good on active duty than by retiring and speaking out.[1]

One of President Johnson's "five silent men," General Harold K. Johnson, Army Chief of Staff from July 1964 to July 1968, after his retirement engaged in considerable self-examination about his decision to remain on active duty in spite of his grave objections to the prosecution of the Vietnam War:

> I remember the day I was ready to go over to the Oval Office and give my four stars to the President and tell him, "You have refused to tell the country they cannot fight a war without mobilization; you have required me to send men into battle with little hope of their ultimate victory; and you have forced us in the military to violate almost every one of the principles of war in Vietnam. Therefore, I resign and will hold a press conference after I walk out of your door."[2]

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The senior U.S. commander in Vietnam for much of that time was General William Westmoreland, who insisted on large-unit "search and destroy" missions. Johnson's professional judgment, supported by a major Army study, was that only an intensified, classic counter-insurgency response would succeed against Vietcong and North Vietnamese attacks. The Joint Chiefs of Staff

(JCS) refused to support General Johnson, fearful of interfering with a field commander's prerogatives. History shows that General Westmoreland's tactics were wrong. General Johnson never had his confrontation with Nixon, convinced that resigning would achieve little or nothing, generating a brief flurry of media attention but no policy change. However, near the end of his life General Johnson came to regret that decision.[3]

More recently, Lieutenant General Gregory Newbold, USMC (Ret.), attracted much media attention with an April 2006 *Time* magazine column that called for Secretary of Defense Donald Rumsfeld's resignation.[4] General Newbold also assessed his own performance as the operations director for the Joint Staff:

> After 9/11, I was a witness and therefore a party to the actions that led us to the invasion of Iraq—an unnecessary war. Inside the military family, I made no secret of my view that the zealots' rationale for war made no sense. And I think I was outspoken enough to make those senior to me uncomfortable. But I now regret that I did not more openly challenge those who were determined to invade a country whose actions were peripheral to the real threat—al-Qaeda.[5]

Not only did Newbold object to the war in principle, but he believed that the planning for it had been seriously deficient:

> What we are living with now is the consequences of successive policy failures. Some of the missteps include: the distortion of intelligence in the buildup to the war, McNamara-like micromanagement that kept our forces from having enough resources to do the job, the failure to retain and reconstitute the Iraqi military in time to help quell civil disorder, the initial denial that an insurgency was the heart of the opposition to occupation, alienation of allies who could have helped in a more robust way to rebuild Iraq, and the continuing failure of the other agencies of our government to commit assets to the same degree as the Defense Department.[6]

In 2002 Lieutenant General Newbold had appeared a likely candidate to be the next Commandant of the Marine Corps. He instead chose to retire, in part because of his opposition to the war. He waited until 2006 to make his views about the Iraq war and its planning public.

General Newbold's comments and actions, like those of General Johnson, pose two ethical issues. First, when, if ever, should an officer request to depart in protest because of policy objections?[7] Second, when, if ever, should an officer who has departed because of policy objections speak publicly about those objections? This article's three sections develop a model for American military officers to use in answering those questions. The first section identifies the four categories of moral situations that an officer who has policy objections can face. The second section examines moral factors relevant to deciding whether to depart in protest. The third section employs those moral factors to evaluate

whether an officer should depart in protest with respect to each of the four categories of moral situations. Finally, the article's conclusion illustrates the model's utility by reviewing the decisions of Generals Johnson and Newbold.

The context of General Newbold's decisions makes clear how his resignation and General Johnson's choice not to resign dovetail to provide appropriate case studies for the moral questions outlined above. General Newbold was not alone in publicly calling for Secretary Rumsfeld's resignation. Other retired generals who did so include: Army major general Paul Eaton, responsible for training Iraqi security forces in the year after Baghdad fell; Marine general Anthony C. Zinni, previously commander of Central Command, responsible for operations in the Middle East; and Army major general John Batiste, commanding general of the 1st Infantry Division in Iraq during 2004–2005.[8] Many of the retired generals critical of Rumsfeld have cited McMaster's *Dereliction of Duty,* a book now widely regarded by military officers as essential professional reading, as partial justification for their speaking out.[9]

A few officers—among them a former Army Chief of Staff, General Eric Shinseki; the Commandant of the Marine Corps, Michael W. Hagee; and Central Command's General John Abizaid—have reportedly sought to influence policy from within the institution by strongly defending their opinions while on active duty.[10] If so, they emulated President Johnson's "five silent men," who, at least in part, believed that they could accomplish more good by remaining in post than they could achieve by resigning. From this perspective, General Johnson's ex post facto lamentations, not his actions, were wrong.

The high profile of those involved, their positions of significant leadership within the Department of Defense, the diversity of moral choices they made, and the serious issues involved combine to make the decisions of Generals Johnson and Newbold timely and interesting. McMaster's influential book, a recent article in this journal challenging some of his central conclusions, and the continuing relevance of these moral issues for officers in and out of combat lend additional impetus to examining protest departures through an ethical lens.[11] Military ethicists and others have largely ignored the issue of protest departures. Martin Cook is a notable exception; he has briefly discussed the subject, but even he did not offer a detailed analysis or any suggestions as to when departing in protest might be appropriate.[12] This lack of substantive moral discourse suggests a need to broaden the moral development of officers to include this topic.

CATEGORIES OF MORAL SITUATIONS

Officers face four different categories of moral situations when assigned responsibilities they believe morally wrong.[13] These options constitute a spectrum best viewed as progressing from least to most morally problematic:

- An assigned responsibility the officer can perform with minimal moral discomfort
- An assigned responsibility the officer can perform only with substantial moral discomfort
- An assigned responsibility the officer can perform only at the cost of significantly compromising his or her moral standards
- An assigned responsibility the officer must not perform.

In the first category, at one extreme of that fourfold taxonomy, the moral component of an issue lacks sufficient gravity or import to evoke substantial moral reflection or debate. For example, an officer may disagree with the uniform prescribed for a special event. The officer may have good reasons for disagreeing—for instance, legitimate concern about the comfort of personnel involved or projected impact on public relations. Both reasons have moral dimensions. Officers have an obligation to the well-being of assigned personnel. Officers have a similar obligation to maintain the institution's health, an obligation that good relations with the public (voters and taxpayers) support. Yet no officer should choose to depart over this issue. Nobody's life, or even health, appears at risk. No one must act illegally or, probably, contravene any regulations or instructions. Long-term consequences, if any, seem minimal.

This exemplifies the type of assigned responsibility about which officers may have moral disagreements but that nonetheless they should be able to perform with minimal moral discomfort. Subordinates and seniors, all individuals of good will and high moral standards but with different vantage points, levels of experience, and responsibilities, will frequently reach different conclusions about such issues.[14] Officers of all grades routinely deal with them.

At the other extreme of the spectrum lies the fourth category, egregious illegal orders, such as to commit what international or U.S. law classifies as war crimes. The substantive consequences of complying with such an order are so great than an officer has no ethical choice other than to refuse to obey. Since Vietnam, most discussions of what an officer should do when confronted with an order or assignment with which the officer morally disagrees have focused exclusively on this type of situation.[15]

Few U.S. military officers will face a moral decision in this category.[16] The laws governing the American military cohere well with most major ethical systems.[17] (Court proceedings or other investigations may prove that orders governing treatment of enemy combatants detained at Guantanamo, Abu Ghraib in Iraq, and elsewhere were recent exceptions to that generalization.)[18] The officers most likely to face a moral decision in this category are in grades O1 through

O6—that is, second lieutenants or ensigns through colonels or Navy captains, officers leading ground units or serving in aircrews or on board vessels at sea. Lieutenant William Calley alleged that his commander, Captain Ernest L. Medina, ordered the My Lai massacre. Had that allegation been proven, Captain Medina's order to Lieutenant Calley would have belonged to this fourth category, an order that Calley should have refused to obey. Only when widespread, systemic moral breakdown occurs, as in Nazi Germany, are flag and general officers likely to confront this category of moral decision.

The Iraq conflict has produced an example of an officer believing that by performing his assigned responsibility, deploying to Iraq, he would violate the law. First Lieutenant Ehren Watada, of the 3rd Brigade, 2nd Infantry Division, at Fort Lewis, Washington, submitted his resignation and refused to deploy to Iraq: "Simply put, I am wholeheartedly opposed to the continued war in Iraq, the deception used to wage this war, and the lawlessness that has pervaded every aspect of our civilian leadership." The Army subsequently denied his resignation request.[19] His case, unresolved at the time of writing, is especially pertinent, because he believes that by refusing to go he is fulfilling his primary moral duty, defending the Constitution.[20]

Lieutenant Watada has chosen a high-stakes moral stand, as would most (all?) officers who face this type of situation. If subsequent legal proceedings vindicate Watada's claim, then he will have done his duty, perhaps the only officer to do so. Military personnel may not use obedience to orders as a defense if the accused knew, or should have known, that the orders were unlawful.[21] If Watada is not vindicated, the legal proceedings will probably find him guilty of desertion. Officers, having sworn to defend the Constitution, lose the privilege to quit military service at their option and must continue to serve pending acceptance of their resignation.[22] Common sense dictates that a military cannot remain viable if its leaders may quit at any time.[23]

The taxonomy's second category consists of situations in which an officer can perform an assigned responsibility only with substantial moral discomfort. This category includes assigned responsibilities that, although not illegal or immoral per se, violate established policies. When I was a junior officer, a senior directed me to expend nonappropriated funds for an item implicitly prohibited by official instructions. Yet the item was essential for a program, the program would benefit many, and purchase with appropriated funds was illegal. When I expressed my unease, my senior, at his own initiative, put his instruction to me in writing. By doing so he took full responsibility for the decision and relieved my moral distress. In subsequent years I repeatedly, in a variety of different situations, emulated and taught this example of taking responsibility.

However extensive they may be, written policies cannot foresee or address every contingency. The more extensive written policies are, in fact, the more likely they are to lack internal consistency. Intentionally violating policy should make officers uncomfortable, but they must accept responsibility for difficult choices. Positive experiences in resolving this type of situation help to habituate the virtues of prudence (of which moral awareness is a prerequisite) and courage.

A comment once made about the role of civil servants applies equally to military officers—that they live "by an unusual code. Assuming that the government for which he works is a constitutional one, a permanent official's conscience must not bleed when he is asked to carry out a policy that doesn't fit his own ideas. Indeed, he requires a conscience which tells him, except in extreme circumstances, to pipe down after he has had his say, and to get to work in support even of what he thinks is wrong."[24] No officer, of any grade, who has a strong sense of morality will likely serve for very long without being assigned a responsibility to which he or she morally objects. Yet unless a situation involves grave consequences for others or the nation, the nation rightly expects military officers to do their duty.[25]

An example of an issue with grave consequences would be understatements in recent years of the amount of force and duration of time required to stabilize Iraq. The United States today faces an international policy conundrum (developing a viable exit strategy) as the toll of wounded and killed military personnel increases daily. In other words, General Newbold's decision to retire clearly falls into the third category, the type of assigned responsibility with which officers can comply only by compromising their moral standards. General Johnson's decision to remain as Chief of Staff in spite of his objections to the president's policies and lack of forthrightness with the public also belongs to the third category.

An example of an issue that does not meet that threshold is policy regarding homosexuals serving in the military. Those who object to the presence of gays and lesbians in uniform may view the policy of "don't ask, don't tell" as morally wrong, but that policy does not cause grave, irreversible harm to the nation or to military personnel. Individuals denied the privilege of serving their nation lose a privilege, not a benefit or a right.[26] Yet many on both sides of this issue understandably feel substantial moral discomfort in complying with a policy that they find morally wrong. The "don't ask, don't tell" policy thus belongs to the second category of moral situations.

It is impossible to demarcate definitively the line between the second and third categories. The most important determinants of that boundary are the degree and amount of harm or other evil caused by complying with an assigned responsibility. Officers of good moral character may define harms in contrary terms—believing, for example, homosexuality wrong and therefore harmful to

good morale versus believing it morally acceptable and therefore not a legitimate basis for discrimination. Similarly, officers will often differ in their assessments of likely outcomes and of the magnitude of those outcomes, such as the number of troops and length of time required to stabilize a vanquished Iraq. For all officers, consideration of the third category (assigned responsibilities that if performed will cause significant compromise) requires analysis of pertinent moral factors. What are they?

RELEVANT MORAL FACTORS

Identifying the relevant moral factors establishes a moral framework by which an officer with an assigned responsibility from the third category can select an appropriate course of action. Careful reflection can also help clarify whether the issue truly belongs to the third category or in fact belongs only to the second.

Aristotle maintained that ethics have a single goal, *eudaimonia*.[27] This Greek word is usually translated as "happiness" but is better rendered as "well-being" or "flourishing."[28] The prominent twentieth-century philosopher Alasdair MacIntyre recognized that an individual's *sitz im leben*—situation or setting in life, which he terms *practices*—defines that teleological aim.[29] For military officers, the commissioning oath clearly states that *telos,* or goal. Officers swear or affirm "to support and defend the Constitution of the United States against all enemies, foreign and domestic."[30] The officer's duty is to defend the Constitution, not to advance her or his career, support a political ideology, or achieve any other purpose. The oath has no fine print, no subclauses, as the remainder of the oath emphasizes. Some may interpret that straightforward declaration as a rule.[31] In fact, however, the oath constitutes a broad, overarching declaration of the telos of an officer's military service.

Fulfilling that moral purpose is especially important when matters of life and limb are involved. Enlisted personnel, who numerically suffer the most combat casualties, swear to obey the orders of those appointed over them.[32] Officers are the uniformed leaders of the armed services. Their responsibility "is to give voice to those who can't—or don't have the opportunity to—speak."[33]

The character traits or virtues conducive to performing the duty to defend the Constitution constitute a framework for determining an officer's duty in any specific situation. MacIntyre's definition of virtue makes this clear: "A virtue is an acquired human quality the possession and exercise of which tends to enable us to achieve those goods which are internal to practices and the lack of which effectively prevents us from achieving any such goals."[34] Focusing on virtue avoids the temptation to allow the end to justify the means;[35] recognizes that most ethical behavior is the result of habit rather than choice;[36] and includes an affective as well as rational component of ethical behavior.[37]

One military ethicist has proposed that the relevant virtues for an officer living out the telos of the commissioning oath are the services' core values.[38] However, as the four services have different core values, this approach unnecessarily complicates any general discussion.

A longtime professor of military ethics at the Air War College, James Toner, relying on a virtue ethics approach for his wide-ranging discussion of military ethics, singles out the four virtues of prudence, justice, courage, and temperance as the most important for military officers.[39] Three of those virtues—prudence, courage, and temperance—are, as discussed below, of critical value in helping officers identify and do their duty. However, the virtue of loyalty is arguably more important than the virtue of justice for the officer who has moral objections to an assigned responsibility.[40]

Obviously, moral officers need the virtue of justice.[41] Officers allocate resources, administer discipline (rewards and punishment), assign responsibilities, and perform other tasks in which the virtue of justice bears directly on performance. Without justice, it is impossible to sustain good morale and maintain fidelity to the Constitution. For instance, the constitutional requirement for equal treatment under the law differs between civilian and military but should be consistent for all personnel in each category, regardless of race, religion, etc.

Yet for the military officer facing a morally objectionable assigned responsibility, loyalty supersedes justice. The officer has sworn to defend the Constitution, whether or not the Constitution is just. Before dismissing that statement as trivial, consider the ongoing debates over abortion and capital punishment. The Supreme Court has declared both abortion and capital punishment constitutional.[42] Many loyal American citizens sharply disagree with the Court, strongly believing one or both of those acts unjust. But whatever an officer thinks about the morality of abortion or capital punishment, the officer has sworn to defend the Constitution. Similarly, the nation may fight an unjust war. Michael Walzer has suggested that the U.S. invasion of Cuba in 1898 was unjust.[43] Yet the military officer (all male, at the time) who received a legal order to fight that war had no recourse but to do his duty and go fight. To refuse to go before one's resignation was accepted constituted desertion and an indirect attack upon, rather than defense of, the Constitution.[44] That has not changed. Unless vindicated by current legal proceedings, this is the position in which First Lieutenant Watada will find himself.

Loyalty to the Constitution takes precedence over justice also in dealing with subordinates. Since an officer's primary moral obligation is to defend the Constitution, results matter. Repeatedly relying upon the same individual or unit to accomplish the most dangerous and difficult missions may be unjust; that person will suffer the most hardship and risk and that unit probably the most

casualties. Yet repeated assignments may be essential if officers are to fulfill their duty to defend the Constitution.

Prudence, loyalty, courage, and temperance are thus the four most important virtues for military officers facing assigned responsibilities with which they morally disagree. The discussion that follows of these virtues focuses on aspects relevant to whether an officer should depart in protest.

Prudence is practical wisdom; prudence "not only helps us to be of good counsel, but also to judge and command well."[45] The virtue of prudence encompasses the wisdom to recognize and classify a moral challenge (cf. the preceding section of this article), discern the moral issues involved (explored in this section), and develop an appropriate response to that challenge (the article's next section).[46]

The virtue of prudence is a sine qua non for military officers who would perform their duty to defend the Constitution. One critical aspect of prudence is the ability of an individual to recognize her or his own blind spots. For example, leaders during war may have so much personally invested in victory that they cannot see factors that make victory unachievable.

Military officers develop the virtue of prudence, which Aristotle classifies as an intellectual virtue, through experience, moral development, and mentoring.[47] The specifics of prudential wisdom vary according to the specific situation an officer faces. Reading this article, for instance, enhances moral development by focusing attention on categories of situations in which a protest departure may be justified, the moral issues pertinent to protest departures, and the experiences of officers who found themselves in morally problematic situations. Discussing the article's contents with other officers would afford opportunity for mentoring.

Loyalty has already been defended as a primary virtue for military officers facing a moral situation that may warrant a protest departure. Two aspects of loyalty require consideration. First, to whom or what is loyalty due? Second, if loyalty is due to more than one entity in the same moment, what is the proper hierarchy of those loyalties? The first of those questions is the easier to answer: loyalty is due to the Constitution and to one's seniors, peers, subordinates, and self. Although an officer's loyalties also extend to family, friends, allies, fellow citizens, etc., these are of secondary importance for this discussion, since the previous categories subsume them: loyalty to self encompasses loyalty to friends and family, loyalty to the Constitution embraces loyalty to citizens, and so on.

The second question—establishing the proper hierarchy of loyalties—is much more problematic. Loyalty to the Constitution always takes priority over other loyalties. The Constitution and the nation are synonymous for the military officer, as the Constitution defines the nation. Clarity on this point ensures

the preservation of our democratic republic and prevents the emergence of any form of monarchy or oligarchy through misdirected loyalty of officers to the executive, legislative, or judicial branches of government.

Fletcher Knebel's widely read 1962 novel *Seven Days in May* suggests what to most seems impossible, an attempted military coup in the United States.[48] In the novel, an officer whose loyalty to the Constitution remained his first priority averted that crisis. Four decades later, however, in an era of a military community that finds its values at odds with those prevailing in society, an era of growing careerism, and an era in which fear of terrorism is for many more potent than the defense of freedom, to dismiss cavalierly the possibility of a military coup seems imprudent.[49] Emphasizing that a military officer's first and paramount loyalty is to the Constitution, to defend it against all enemies foreign and domestic, erects a bulwark that safeguards democracy.

But what of other loyalties? Loyalty to seniors is presumed to follow close behind in the hierarchy of a military officer's loyalties. The seemingly omnipresent "chain of command" photos found on walls and bulkheads in all military commands symbolize this presumption. A military officer's seniors, if military officers themselves, share the duty to defend the Constitution. If civilian, they occupy posts created by authority of the Constitution, which established civilian control of the military and identified the president as commander in chief.[50] But no officer can abdicate personal moral responsibility.[51] For example, as previously noted, no officer (or enlisted person, for that matter) can claim that he or she was simply obeying orders as a defense in a war crimes trial.[52] An illegal order must be disobeyed (this is the fourth category of the fourfold taxonomy of moral situations that an officer may face). Loyalty to the Constitution therefore always takes precedence over loyalty to seniors.

There are even situations in which loyalty to subordinates must take precedence over—or redefine the meaning of—loyalty to seniors. This is particularly difficult when the senior is a civilian:

> The challenge is always to acknowledge and respect two competing considerations: the genuine expertise of trained military professionals and the need to ensure that their professional military advice is solicited and heard; and the vital concern to guard against the military's making claims to expertise that properly lies beyond the scope of military advice and encroaches on political expertise and authority.[53]

For example, one lesson from the Vietnam War was that civilian control of the military should not extend to the tactical level.[54] The military professional's expertise embraces the requirements and costs of waging war, the conditions for waging war successfully, etc.[55] General Newbold and other senior military officers brought this expertise to the table during the planning of the Iraq war;

civilian leaders like Secretary Rumsfeld, in spite of his long tenure, arguably lacked this expertise. Loyalty to seniors and to subordinates demanded that General Newbold as JCS operations director speak candidly in advising his civilian seniors about a war that he believed was not only unnecessary but that they planned to wage in a manner that would result in unnecessary and avoidable casualties among U.S. armed forces.[56]

Genuine loyalty requires speaking the truth, as one understands it, in a timely, direct, and appropriate manner. If an officer fully believes his or her opinion to be the truth and of such importance that it demands a hearing, then the officer is morally obligated to do everything possible to ensure being heard. Admittedly, truth can be elusive, especially when dealing with predictions of the future. "Opinion" better denotes my meaning, but it fails to convey the degree of confidence and significance that an officer in such a situation must attach to it before placing loyalty to subordinates above loyalty to seniors.

Loyalty to self and loyalty to peers, then, both fall always below loyalty to the Constitution and usually below loyalty to seniors and subordinates. The profession of arms is rightly described as service to the nation; the term "armed services" explicitly recognizes this characteristic of an officer's profession. Service, by its very nature, requires subordinating the servant's interests to the master's. Martin Cook, in fact, describes military service as an unlimited liability contract.[57] Under the terms of this unlimited liability contract, officers may have to go into harm's way, perhaps even die, in the course of their duty. Less recognized are the smaller, more routine, and more frequent sacrifices that result from being told where to work, assigned what to do, dispatched on lengthy deployments, etc.

Careerists are officers who consistently place self ahead of other loyalties. Courtney Massengale, one of two protagonists in Anton Myrer's novel *Once an Eagle*, exemplifies a careerist.[58] Careerism is an unhealthy form of egoism that values the self above all else, an approach to ethics that is incompatible with the service and sacrifice inherent in the profession of arms. Unfortunately, careerism seems increasingly prevalent: "'The officer corps is willing to sacrifice their lives for their country, but not their careers,' said one combat veteran who says the Pentagon's civilian leadership made serious mistakes in Iraq, but has declined to voice his concerns for attribution."[59]

There are occasions on which loyalty to self appropriately takes precedence, such as when a senior is never satisfied with a subordinate's effort or performance or demands that the subordinate sacrifice all aspects of personal life to perform non-mission-essential duties. Martyrdom, to be worthwhile, must achieve something meaningful.

Several factors often masquerade as loyalty. Officers, for example, may be told that they must "go along to get along"—that is, comply with that which does not

fully meet standards in order to maintain positive peer relationships. This is not genuine loyalty but pressure to be complicit in others' failure to do their duty. An appeal to loyalty may disguise an appeal to expediency (nobody will notice that not all the checks were made this one time) or mutual self-protection (don't report me late for duty and I won't report you if you're ever late yourself). Such appeals always demand that loyalty to peers take precedence over loyalty to seniors or to one's duty to the Constitution.

Conversely, doing one's duty can be carried to an extreme. A subordinate who for the first time in three years of working for the same senior is twenty seconds late for muster or (except perhaps in recruit training or a ceremonial unit) has inadequately polished shoes does not need reprimanding. Those shortcomings may be inadvertent or may, as part of a larger picture, point to unhealthy stressors in the subordinate's life. Good leadership prudentially applies rules and regulations in a way that is fully consistent with doing one's duty. Nobody would choose to serve with an officer who lacked loyalty to subordinates or peers. But that loyalty must always be understood within the broader perspective of loyalty to seniors and an officer's teleological duty to the Constitution.

Seniors occasionally demand excessive loyalty from subordinates. Such demands tend to cascade down the chain of command. For example, even as General Tommy Franks, as Commander, U.S. Central Command, was obsequious toward Secretary Rumsfeld, so also General Franks demanded that same kind of loyalty from his subordinates.[60] This has the unintended consequence of depriving all levels of healthy dissent and denies the senior the opportunity to capitalize on the perspective and wisdom of the entire staff. One of five errors in the 2003 Iraq war that Gordon and Trainor identify was that President George W. Bush and Secretary Rumsfeld "presided over a system in which differing military and political perspectives were discouraged."[61] In contrast, General Henry Shelton, in his tour as chairman of the Joint Chiefs of Staff, wanted unvarnished opinions and insisted that service chiefs and commanders read McMaster's *Dereliction of Duty*. The secretary of defense at the time, William Cohen, echoed Shelton's sentiment.[62]

In sum, loyalty, like the Aristotelian moral virtues other than justice, constitutes a situationally defined mean between two extremes.[63] For loyalty, the two extremes are excessive devotion and priggishness. An officer who fails to report a peer's felonious behavior displays excessive devotion. An officer obsessively focused on duty, unable to overlook any human foible or forgive any error, performs priggishly. Neither extreme makes for a good officer who appropriately balances, on the one hand, loyalty to peers and self with, on the other hand, loyalty to seniors and duty.

Achieving the right balance is a continual challenge. Cheating scandals at the various service academies have consistently revealed students who were aware of the cheating but failed to act to stop it. Their inaction magnified the scope of the scandals, illustrating some of the negative consequences of excessive devotion. Too many valiant officers in World War I tragically incarnated Tennyson's words "Theirs not to make reply, Theirs not to reason why; Theirs but to do and die," priggishly leading their troops in hopeless assaults on enemy lines.[64] Those officers were disloyal to their subordinates, wasting thousands of lives in futile assaults. The virtue of loyalty, shaped by the telos of duty, must be complemented by the virtues not only of prudence (knowing when and how to object to an order) but of courage.[65]

Courage is "character in action; it is a pattern."[66] Identifying the best moral option (the function of prudence) is insufficient for a moral life. One must act on that information to select and then to live out the identified option. Courage is the essential virtue for doing this.

Aristotle described virtue as intentional habits. If a person acts in the morally correct manner yet without any awareness of what he or she is doing, the act, though morally correct, is not virtuous. Virtue requires that a person cultivate the habit of intentionally making the right choice.[67]

With respect to courage, the right choice is the mean between the extremes of rashness and cowardice.[68] The rash act is an act that is made without reflection, may have little or no chance of success, and confers no virtue upon the doer. Colonel George Armstrong Custer's braggadocio that resulted in the massacre of the 7th Cavalry at the Little Big Horn illustrates rashness, not courage.[69] General George B. McClellan's reluctance, when he commanded the Army of the Potomac, to engage Confederate forces in battle illustrates cowardice in command; although personally brave, he was unwilling to risk his command, his reputation, or his troops in combat.[70]

Recent examples of senior officers misjudging the mean between rashness and cowardice are instructive.[71] Robert Timberg in his analysis of the Iran-Contra scandal of the 1980s contends that the Naval Academy training that had helped Lieutenant Colonel Oliver North (of the National Security Council staff), Robert McFarlane (the president's national security adviser, 1983–85), and John Poindexter (McFarlane's successor) achieve positions of power in the Ronald Reagan administration was also responsible for their acts that led to criminal charges. In each case, the officer's threshold for resigning was too high for his good as well as the good of the nation.[72]

General Zinni takes an even less charitable view toward senior officers, believing that the military services are "broken," because senior officers place career ahead of duty. He cites former General Shinseki's fate as the price of candor. Secretary Rumsfeld publicly criticized him for testifying before Congress that

Iraq operations would require several hundred thousand troops and then marginalized the general by announcing his successor a year early.[73] That happened in spite of a long-standing custom that calls upon senior officers to give their opinions, if specifically asked, during testimony before Congress.[74] In a *New York Times* op-ed, General Eaton wrote of Shinseki's punishment, "The rest of the senior brass got the message, and nobody has complained since."[75] Against this backdrop, the generals who have called for Rumsfeld's resignation have thereby evidenced considerable courage.

If General Zinni is correct, if many military officers no longer have the capacity to exercise moral courage, officer education and training require major revamping. Officers must be able to discern when assigned responsibilities conflict with their duty—the virtue of prudence. Having done so, an officer, of any grade, must act on that conviction—the virtue of courage. If virtues are intentional habits, effective change in officer education and training will require an emphasis on how officers form habits of identifying and protesting assigned responsibilities with which they have significant moral disagreement. Effective change will focus also on the virtue of temperance.

Temperance was defined by Aristotle as the mean between insensibility (deficiency of pleasure) and self-indulgence (an excess of pleasure). Aristotle confined his definition of temperance to bodily pleasures, writing in terms of sensation and touch.[76] However, broadening the definition of pleasure to include all forms of pleasure, physical and otherwise, helpfully expands his definition.[77] In that larger sense, officers with assigned responsibilities that will cause them to make moral compromises should carefully examine their motives for, respectively, staying on active duty and departing in protest.

Obviously, some decisions require an immediate choice, and, as already noted, most moral behavior is reflexive, habitual.[78] Situations in which one must consider whether or not to request a principled departure generally afford time for careful reflection. The infamous 1973 "Saturday night massacre" that ensued when Attorney General Elliot Richardson, followed by his deputy William Ruckelshaus, refused President Richard Nixon's directive to fire special prosecutor Archibald Cox may appear to be an exception to this generalization. In fact, however, although Richardson and Ruckelshaus both "resigned," they had served at the pleasure of the president who demanded their resignation. In plain language, the president effectively fired them both, because they refused to obey his directive.[79]

Military officers are unlikely to find themselves in a similar situation, receiving morally odious orders of questionable legality that require immediate execution. In any case, the forward-thinking officer generally knows the options on the table, allowing him or her time to consider an appropriate response before

receiving an order. Orders that, as is extremely improbable, arrive without forewarning, demand immediate execution, and are morally odious are likely to be patently illegal as well.

Self-examination takes time, is most effective when habitual, yet is an essential habit for military officers to cultivate. Moral officers will habitually assess whether their primary motive in responding to a morally objectionable assigned responsibility of any type is:

- Career advancement (the excess of self-indulgence)
- Doing their duty, a duty that appropriately recognizes and balances various loyalties, including loyalty to self (the mean of temperance)
- Self-effacing martyrdom that totally devalues the officer and the officer's career (the excess of insensibility).

Decisions to depart (request reassignment, retire, or resign) are usually costly. They invest all of an officer's credibility in a single attempt to influence policy. Others, even those who share the officer's moral views, are unlikely to continue to regard the officer as a team player. The armed services in this respect are probably no different from political parties or large corporations.[80] Senior leaders usually select their own "teams." Many seniors not surprisingly prefer players who subordinate ethical autonomy to team loyalty.[81] A decision to depart the military community, especially by the incumbent of a senior position, may preclude future employment options in defense-related fields.[82]

Officers in a pay grade between O1 and O6, in a lower-profile position, typically communicate their reasons for departing to the relevant decision makers in a formal but nonpublic way, as via a letter of resignation or request for reassignment. In this case, the cost may be mainly financial, impacting future employment options only minimally. However, resigning after ten or more years of service in a system that does not vest pension benefits until retirement eligibility can entail a substantial financial disadvantage.[83] Requesting a reassignment generally ends an officer's hope for promotion, eliminates raises tied to promotion, and perhaps forces the officer to leave active duty because of "high year tenure" policies (a requirement to leave the service by a certain point if not promoted).

The circumstances of none of the three departure options are entirely under an officer's control. Years of service, remaining obligated service, time in grade, time on station, and billet held may limit an officer's options.[84] Those factors tend to effect junior officers more than senior officers. Further, all requests for transfer, resignation, and retirement require approval. Approval is not automatic, and the process often takes months to complete. Meanwhile, the officer must remain in situ until otherwise directed.

Officers of all grades must carefully consider their motives for deciding to depart in protest. The graver the choice, the larger and broader the consequences, the more irreparable the potential damage, the greater is the need for moral firmness rather than flexibility. *Semper Gumby* ("always flexible"), although appropriate in some military situations, is the hallmark, if employed as a moral descriptor, of the self-indulgent and thus a recipe for moral malaise rather than rectitude. Lifelong cultivation of the virtues of prudence, loyalty, courage, and temperance lived out under the teleological penumbra of doing one's duty to defend the Constitution represents an officer's best preparation for constructively facing a morally problematic assigned responsibility.

REVIEWING THE OPTIONS

An officer confronting a moral situation belonging to the third category (an assigned responsibility performed only at the significant compromise of one's moral standards) must make a decision. In each of the other three categories, the preferable choice is clear. If the assigned responsibility causes minor moral discomfort, complete the assignment anyway. If the assigned responsibility causes substantial moral discomfort, complete the assignment while striving to effect change from within the system. (Efforts to achieve change should not entail a shirking of responsibility, slow execution of orders, substandard performance, undercutting of civilian authority over the military, or any other behavior that manifests a lack of loyalty to the officer's primary duty to defend the Constitution.[85] Morally appropriate methods to effect change emphasize providing the cognizant authority complete, cogent analysis and forthright opinions in a timely, tactful, and appropriate manner.) Finally, if the assigned responsibility is one an officer must not perform, refuse to obey the order.

In responding, however, to a situation from the third, least clearly demarcated category, an officer has four options:

1. Stay on quietly, hoping for the best, trying to resist from inside.
2. Depart quietly, physically severing one's connection with "the team."
3. Depart with public protest, alerting the public to the egregiousness of the problem.
4. Try to have it all ways—first holding on for as long as possible, then departing and walking a tightrope between discreet silence and public protest.[86]

How does an officer choose the best option in any given situation?

Successful examples of an officer choosing the first course of action—staying on quietly and trying to resist from within—are inherently the most difficult to identify. Publicizing an officer's ability to effect this type of change sabotages

that officer's future viability as a team player and hence his or her career. Most organizations tolerate only limited dissent and ostracize those who transgress that boundary;[87] General Shinseki, for instance, enjoyed until the end of his career a well-deserved reputation as a team player.[88]

The Nobel Prize–winning German scientist Otto Hahn, who codiscovered uranium fission in 1938, covertly arranged the escape of his Jewish collaborator and then sabotaged the German research program to prevent the Nazis from developing a nuclear weapon.[89] He is an example of someone who stayed on and was quietly effective from within the system. However, an important distinction between Hahn's situation and that of most U.S. military officers needs highlighting. The Nazis sought to implement a policy that was patently immoral and illegal. Further, unlike in the United States, the German legal system offered no avenue of redress. If an American military officer, in contrast, believes an order patently immoral and illegal, then that officer, like Lieutenant Watada, should refuse to obey and then rely on the legal process for vindication. An officer who chooses to remain in the U.S. armed forces and seek change from within cannot morally seek to subvert policy established by legitimate authority. The officer's moral duty at that point includes loyal obedience to orders.[90] The officer must seek change only in morally sound ways. The paucity of such approaches has historically rendered the option only rarely effective.

Robert McNamara, who as secretary of defense grew increasingly disillusioned about the Vietnam War yet did not resign in protest, is an example of opting to work for change from within and failing. McNamara found himself gradually stripped of power and then, abruptly, president of the World Bank.[91] General Harold Johnson's failed attempt to effect change from within has been noted.

For many officers, the first option—stay on and resist the policy from within—is often the most tempting, as officers generally are loyal team players who believe that they can make a difference.[92] The longer officers serve, the more likely they are to identify themselves with the institution of the armed services, becoming ever more heavily invested in preserving, protecting, and promoting it.[93] Flag and general officers may also believe that a new administration will change, or create the potential for changing, an objectionable policy and that accordingly, by remaining, they will have influence in the future.[94] As with any prediction, those calculations may be inaccurate. Parallel with but distinct from those laudatory goals are an officer's own career ambitions that promote commitment to the team. Also, the institution inculcates in officers with a deficiency of self-esteem a paternal-like dependency that binds them to the team.

The fourfold delineation ignores a fifth option: do nothing. Perhaps that should have been included. However, in an institution that prizes moral

behavior as much the U.S. armed services claim to, an officer should do *something* when assigned a responsibility that may compromise his or her moral standards. As a moral minimum, the officer should quietly seek to effect change from within the system. Nothing less is acceptable, given that an officer's primary moral aim is to defend the Constitution against all enemies foreign and domestic. For the officer whose moral standards align with the telos of duty and the virtues of prudence, courage, temperance, and loyalty, any assigned responsibility that compromises those standards implicitly represents an attack on the Constitution, whether by a diminution of its vision for the nation or a more frontal assault on its provisions.[95]

Only the naive would assume that no officer ever opts to do less than the moral minimum. Lieutenant General Newbold commented upon such officers in his *Time* column:

> Flaws in our civilians are one thing; the failure of the Pentagon's military leaders is quite another. Those are men who know the hard consequences of war but, with few exceptions, acted timidly when their voices urgently needed to be heard. When they knew the plan was flawed, saw intelligence distorted to justify a rationale for war, or witnessed arrogant micromanagement that at times crippled the military's effectiveness, many leaders who wore the uniform chose inaction. A few of the most senior officers actually supported the logic for war. Others were simply intimidated, while still others must have believed that the principle of obedience does not allow for respectful dissent.[96]

If General Newbold's assessment is correct, these officers are sadly deficient in prudence, courage, temperance, or all three. At a minimum, the officer who cannot comply with an assigned responsibility without significant moral compromise must either attempt to effect change in a morally appropriate manner or depart.

The second option, departing quietly, physically severs one's connection with "the team." The act of leaving, absent an explanation connected to the moral difficulty, is unlikely to change anything other than the personnel roster. This does nothing to rectify what the officer believed to be a serious moral problem; leaving quietly simply passes the responsibility to another officer, who will then face the same moral choices. General Newbold's decision to retire in 2002 exemplifies the inadequacy of this option. His departure caused no waves and apparently did not prompt a reexamination of the policies and plans with which he so vehemently disagreed.

The most important exception to that generalization arises when an officer has individual moral objections, not shared by all, to a particular assigned responsibility. "Individual moral objections" connotes objections rooted in values unrelated to the military officer as a professional. For example, some religious

faiths, for moral reasons, have stringent dietary restrictions; other faiths are completely pacifist. Officers who commit themselves to such faiths will often find that commitment incompatible with continued military service. In that case, leaving quietly is the appropriate moral choice in this nation, whose constitution guarantees a plural, secular culture.[97]

The officer's third choice is to leave in public protest, drawing wide attention to an egregious moral problem. The best opportunity to communicate one's reasons for departing and, for those reasons, to influence policy is immediately following one's departure.[98] The short attention span of the media and their continuing requirement for new news drive this demand for immediacy. Waiting months or years tends to diminish the amount of media attention any pronouncement will receive, as well as its impact. The attention that Lieutenant General Newbold's column received four years after his departure represents an exception to the first part of this generalization. However, by waiting four years General Newbold abandoned the possibility that speaking out could change the policies and plans that caused him to depart. If his criticisms are correct, Americans now live with the consequences of those policies and plans: an invading force that was allegedly poorly prepared for the tasks of occupation and stabilization, resulting in avoidable casualties on all sides and a potentially failed policy. Nobody can know what might have happened had General Newbold publicly voiced his concerns at the time of his retirement.

Incumbents of high-profile positions (most officers in pay grade O7 and above, some in command, recipients of unusual media attention, etc.) are likely to see any departure request speedily approved. Leaders want all of their team members to be highly motivated and supportive of the leader's goals; teams comprising high-profile positions are likely to have a powerful team leader who can push the system to respond. Thus Lieutenant General Newbold, Director of Operations of the Joint Staff in 2002, is likely to have had little difficulty in making a reasonably quick exit, allowing him to present his reasons for departing to the public in a timely fashion.

Mackubin Owens notes that no policy forbids or discourages retired flag and general officers from publicly voicing their opinions. However, he thinks the public unlikely to distinguish between active-duty and retired flag/general officers and worries that retirees speaking out may encourage active-duty officers to undercut policy or to believe that the military has the right to insist that civilian leaders accept the military's policy prescriptions.[99] The long, honorable parade, which began with George Washington, of retired generals and admirals subsequently elected as civilian leaders illustrates the military's fundamental loyalty to the constitutional cornerstone of civilian control of the military, a retired officer's ability morally to juggle multiple roles, and the electorate's appreciation of

both of those realities. Preventing or discouraging retired officers, especially senior officers, from speaking out on current affairs would deprive the nation of valuable wisdom and leadership.

Personnel in lower-profile positions (most officers in grades O1–O6) are generally less able to depart expeditiously, since their team leaders have less influence within the institution. The process of leaving may involve two steps: transfer from the billet currently held to a large, nonoperational command and then release from active duty when the officer's formal request to resign or to retire receives approval.

This difference raises a question: Whom does the officer wish to influence by his or her departure? Those in lower-profile positions who confront responsibilities that will cause them to make unacceptable moral compromises have normally been assigned them by their commanding officer, commander, or the next higher echelon. Those seniors would invariably give close attention to a voluntary request for immediate transfer, which are relatively rare and usually career ending. In such a case, the request is in effect the officer's public statement of protest. The formal letter of resignation that an officer must submit affords a second opportunity to draw the chain of command's attention to what the officer believes is an egregious moral situation.

Officers in higher-profile positions have a more difficult challenge in bringing their cases before people who might be able to alter the situation. They typically enjoy much freedom with respect to day-to-day matters; issues most likely to raise substantive moral difficulties for them will be policy decisions made by civilian authorities, whether Congress, in the executive branch, or both. Civilian decision makers expect external dissent and therefore tend to discount it.[100] Further, both civilian and military decision makers at the highest levels function in an environment in which decisions result from convergence of interests and centers of gravity. This means that officers departing from high-profile positions who wish to make their views heard must likely address multiple audiences and do so forcefully.[101]

The challenges and costs of protest departures lead some officers to attempt the fourth and most difficult exit strategy—holding on for as long as possible, then exiting and walking a tightrope between discreet silence and public protest. Some officers may consider a protest departure in order to provide decision makers with the information necessary for informed debate.[102] However, in the case of military policy, the essential information (say, war plans) may be classified and therefore not disclosable, at least in a timely manner. The illegality of disclosing vital classified information will convince some officers that the fourth option is their only real alternative.

Any officer contemplating a protest departure should heed two cautions. First, the officer must carefully avoid the appearance of conflict of interest—that is, there must be no impression given that the officer stands to profit or benefit by departing. Otherwise, that gain, not the protest, becomes the center of attention; escaping that pitfall requires the virtue of temperance, avoiding the excess of self-indulgence. Second, protest departures, even with optimal publicity to appropriate decision makers, may not visibly alter policy. Departure does mean, however, that the officer no longer has to perform a morally objectionable assigned responsibility. Further, a prudent and temperate officer who courageously departs and who appropriately makes known the reasons for that departure has loyally performed his or her constitutional duty in attempting to effect change.

"I TOLD YOU SO . . ."

The three-step model developed in this article provides a useful framework for analyzing the actions of Generals Johnson and Newbold. General Johnson recognized that he faced a situation belonging to category three of the taxonomy delineated above—that is, a situation in which continuing to perform his assigned responsibility would require significant moral compromise. Time proved him unable to effect change from within the system. Nobody will ever know if the war in Vietnam would have ended sooner, how many fewer casualties there might have been, and whether people would have more trust in the U.S. government if he and the "five silent men" had resigned in protest. In retrospect his decision to remain on active duty was, no matter how well intentioned, not the morally right choice. McMaster is correct. General Johnson and his colleagues failed to do their moral duty to defend the Constitution.

Lieutenant General Newbold, prior to retiring, clearly recognized that he too faced such a situation. In chronological order, he:

- Recognized the situation belonged to the third category, facing assigned responsibilities he could perform only by significantly compromising his moral beliefs (he exercised the virtue of prudence)
- Voiced his objections to decision makers (that he did this without being fired shows that he exercised the virtues of prudence, loyalty, courage, and temperance)
- Retired (rejected option one, continue to work from within the system)
- Publicly, after some years, voiced his objections (chose option four, first work from within and then from without, publicly voicing objections only as a last resort).

General Newbold has publicly pondered whether he should have more assertively challenged views with which he disagreed.[103] Given his opinions that invading Iraq was unnecessary, relied on plans that would produce avoidable casualties, and was a distraction from greater threats to national security, he was morally deficient in not doing everything he could to prevent the war. The timing of his retirement suggests that he recognized the moral compromise he faced. If he could have made a persuasive case against the policies and plans he found morally objectionable without revealing classified information, then, given the magnitude of the issues at stake, he should have chosen option three (resign and speak out) instead of option four. That failure points to deficiencies in one or more of these three virtues: prudence (lacked wisdom to see the full importance of the issues at the time he resigned), courage (too timid), or temperance (too concerned about his position on the team or future influence). Waiting until after the fact to declare "I told you so, but you wouldn't listen" is a manifestation of unhealthy civil-military relations, a decision that lacks any moral justification. In any event, some degree of excessive loyalty to the JCS team, fellow officers, the Marine Corps, etc., probably blurred Newbold's perception of his constitutional duty—an inescapable consequence for all senior officers of long service and multiple loyalties.

Officers facing difficult moral situations must perform their duty to defend the Constitution against all enemies, foreign and domestic, at all costs. They can profitably use this model to chart their course as well as to learn from previous decisions. Step one is to determine which of the four categories of moral situations an officer faces. If the situation belongs to the third category, a situation in which performing the assigned responsibility would cause an officer to make moral compromises, the officer should take step two and consider the situation from the perspective of the relevant moral factors: the aim to defend the Constitution as shaped by the virtues of prudence, loyalty, courage, and temperance. Finally, step three requires the officer to select the best course of action from one of the four that may be morally appropriate.

Several caveats, however, are necessary. Complete information for moral decision making is never available. Any ex post facto review must consider whether the officer, given information available at the time, acted prudentially. Moral virtues are situationally determined means between two extremes. An officer who displays an excess or deficiency of a moral virtue may still strongly embody that virtue in other ways. Finally, the complexities of human behavior preclude simplistic conclusions about motives. Even extensive psychoanalysis cannot always clarify the motives or reasons behind particular actions. Nevertheless, habitual reflection on the actions of others as well as one's own actions cultivates moral growth and development.

NOTES

1. H. R. McMaster, *Dereliction of Duty* (New York: HarperCollins, 1997), p. 330.
2. Quoted by Lewis Sorley, "To Change a War: General Harold K. Johnson and the PROVN Study," *Parameters* (Spring 1998), pp. 92–109, citing Brigadier General Albion W. Knight, Jr., interview, 1 February 1997, and telephone interview, 16 June 1995. Also Knight letter to Colonel Harry G. Summers, Jr., 4 August 1984, copy provided to the author by Colonel Summers. General Johnson made similar statements to or in the presence of several other officers, including Colonel Summers, Colonel Harold Birch, and General Bruce Palmer, Jr. Available at www.carlisle.army.mil/USAWC/parameters/98spring/sorley.htm.
3. Ibid., pp. 92–109.
4. Lieutenant General Greg Newbold (Ret.), "Why Iraq Was a Mistake: A Military Insider Sounds Off against the War and the 'Zealots' Who Pushed It," *Time,* 9 April 2006, available at www.time.com/time/magazine/. Two high-profile media reports on his column are Tom Shanker, "Third Retired General Wants Rumsfeld Out," *New York Times,* 10 April 2006, and Fred Kaplan, "The Revolt against Rumsfeld: The Officer Corps Is Getting Restless," *Slate,* 12 April 2006, www.slate.com/id/2139777/. The most authoritative history of the Iraq war to date also prominently featured Newbold's assessment: Michael R. Gordon and Bernard E. Trainor, *Cobra II: The Inside Story of the Invasion and Occupation of Iraq* (New York: Pantheon, 2006), p. 4.
5. Newbold, "Why Iraq Was a Mistake."
6. Ibid.
7. As explained below, a protest departure may take the form of a request to retire, to resign, or for reassignment.
8. Kaplan, "The Revolt against Rumsfeld." Cf. General Tony Zinni and Tony Koltz, *The Battle for Peace* (New York: Palgrave, 2006), pp. 26–30.
9. Mackubin Thomas Owens, "Rumsfeld, the Generals, and the State of U.S. Civil-Military Relations," *Naval War College Review* 59, no. 4 (Autumn 2006), p. 72.
10. Newbold, "Why Iraq Was a Mistake."
11. The article is Owens, "Rumsfeld, the Generals, and the State of U.S. Civil-Military Relations," pp. 68–80.
12. Martin L. Cook, *The Moral Warrior: Ethics and Service in the U.S. Military* (Albany: State Univ. Press of New York, 2004), pp. 79–93.
13. "Assigned responsibility" is necessarily vague, as it may refer to specific acts or broad support for policy articulated in formal orders, verbal or informal written guidance from a superior, law, regulations or official instructions. "Assigned responsibility" may connote the work of a staff officer (e.g., Lieutenant General Newbold as JCS operations director) or of a commander of a unit from platoon size to the Joint Forces Command.
14. Political appointees similarly cope with many issues of this type without resigning. Charles Frankel, *High on Foggy Bottom* (New York: Harper and Row, 1969), p. 57.
15. For example, cf. James H. Toner, *Morals under the Gun: The Cardinal Virtues, Military Ethics, and American Society* (Lexington: Univ. Press of Kentucky, 2000), pp. 48–53.
16. John Kifner and Timothy Egan, citing the opinion of Brookings Institution military analyst Michael E. O'Hanlon, in "Officer Faces Court-Martial for Refusing to Deploy to Iraq," *New York Times,* 23 July 2006.
17. Toner, *Morals under the Gun*, p. 49.
18. Seymour Hersch, "Torture at Abu Ghraib," *New Yorker,* 10 May 2004, available at www.newyorker.com/printables/fact/040510fa_fact.
19. Michelle Tan, "Army Charges Officer Who Refused to Deploy to Iraq," *Army Times,* 5 July 2005, available at www.armytimes.com.
20. Kifner and Egan, "Officer Faces Court-Martial for Refusing to Deploy to Iraq."
21. *U.S. Manual for Courts-Martial,* Rule 196.
22. Uniform Code of Military Justice, art. 85(b).
23. Alfred Avins, "Right of Military Officers to Resign: An Historical Footnote," *George Washington Law Review* 31 (1962–1963), pp. 431–61.
24. Frankel, *High on Foggy Bottom,* p. 109.
25. Cook, *The Moral Warrior,* p. 63.

26. Individuals discharged from the military may experience considerable anguish or financial consequences from this policy, but those are not irreparable harms. The number of these discharges compared to the size of the military and the nation's population remains relatively low, totaling 726 in 2005. John Files, "Military's Discharges for Being Gay Rose in '05," *New York Times,* 15 August 2006.

27. Aristotle, *Nichomachean Ethics,* trans. W. D. Ross (New York: Random House, 1941), Book 1, chaps. 1–8.

28. Alasdair MacIntyre, *After Virtue* (Notre Dame, Ind.: Univ. of Notre Dame Press, 1984), p. 148.

29. Ibid., pp. 186–91.

30. *Title V, U.S. Code,* §3331.

31. Some military ethicists believe that military officers have a proclivity for a rule-based approach to ethics; see, e.g., Chaplain (Colonel) Samuel D. Maloney, NCANG, "Ethics Theory for the Military Professional," *Air University Review* (March–April 1981), available at www.airpower.maxwell.af.mil/airchronicles/.

32. *Title X, U.S. Code,* §502.

33. Lieutenant General Gregory Newbold, quoted in Shanker, "Third Retired General Wants Rumsfeld Out."

34. Ibid., p. 191.

35. James Toner, "Ethics or Military," *Air & Space Power Journal* (Summer 2003), available at www.airpower.maxwell.af.mil/airchronicles/.

36. Francis J. Varela, *Ethical Know-How: Action, Wisdom and Cognition* (Stanford, Calif.: Stanford Univ. Press, 1992), pp. 21–41.

37. William D. Casebeer, *Natural Ethical Facts* (Cambridge, Mass.: MIT Press, 2003), pp. 118–21.

38. Lieutenant Colonel Kenneth Keskel, USAF, "The Oath of Office: A Historical Guide to Moral Leadership," *Air & Space Power Journal* (Winter 2002), available at www.airpower.maxwell.af.mil/airchronicles/.

39. As Toner acknowledges *(Morals under the Gun)*, these are the four cardinal virtues of Roman Catholic Christianity.

40. All of the military services include loyalty among their core values. The Marine Corps motto, *Semper Fidelis*—Always Faithful—explicitly recognizes the importance of loyalty. Loyalty is one of the seven Army core values. The other armed services also acknowledge the importance of loyalty, although they express it less explicitly in their core values, the Navy including loyalty as part of commitment and the Air Force as an aspect of service before self. Similarly, Joseph G. Brennan identifies loyalty as a commonly cited military virtue along with courage, skill, honor, obedience, and perhaps audacity and cunning but does not attempt to codify or organize his laundry list of virtues, in "Ethics Instruction in the Military: Teach Them Plato or Hammer It into Their Heads," *Naval War College Review* 42, no. 4 (Autumn 1989), pp. 55–65.

41. *Justice* defies easy definition, but most definitions recognize three forms: commutative, distributive, and legal. Toner, *Morals under the Gun,* pp. 85–89.

42. Cf. *Roe v. Wade* and *Gregg v. Georgia.*

43. Michael Walzer, *Just and Unjust Wars* (New York: Basic Books, 1977), pp. 102–105.

44. Avins, "Right of Military Officers to Resign."

45. Thomas Aquinas, *Summa Theologica*, ed. Anton C. Pegis (New York: Random House, 1945), 1–2, Q58, Art. 5, Reply Obj. 3.

46. Toner, *Morals under the Gun,* p. 60.

47. Aristotle, *Nichomachean Ethics,* Book 6, chap. 5.

48. Fletcher Knebel, *Seven Days in May* (New York: Harper and Row, 1962).

49. For societal values, Toner, *Morals under the Gun,* p. 146. For careerism, Colonel Dan Smith, USA (Ret.), "Why Few Top Military Officers Resign on Principle: Candor or Career," www.counterpunch.org/smith04142006.html. Owens implicitly raises the specter of a coup ("Rumsfeld, the Generals, and the State of U.S. Civil-Military Relations," pp. 77–79).

50. U.S. Constitution, Article II, Section 2.

51. For a discussion of the military officer as professional, cf. Cook, *The Moral Warrior,* pp. 59–77.

52. Walzer, *Just and Unjust Wars,* pp. 309–16; *U.S. Manual of Courts-Martial,* Rule 196.

53. Cook, *The Moral Warrior,* p. 81.

54. Ibid., p. 88.

55. Ibid., pp. 59–77.

56. Gordon and Trainor, *Cobra II,* p. 4; Shanker, "Third Retired General Wants Rumsfeld Out."
57. Cook, *The Moral Warrior,* p. 43.
58. Anton Myrer, *Once an Eagle* (New York: Harper Collins, 1968).
59. Shanker, "Third Retired General Wants Rumsfeld Out."
60. E.g., Gordon and Trainor, *Cobra II,* p. 325.
61. Ibid., pp. 498, 502–503.
62. Kaplan, "The Revolt against Rumsfeld."
63. Except the virtue of justice, which has no excess. Aristotle, *Nichomachean Ethics*, Book 2, chap. 2.
64. Alfred Lord Tennyson, "The Charge of the Light Brigade."
65. For the telos of duty, Toner, "Ethics or Military."
66. Toner, *Morals under the Gun,* p. 110.
67. Aristotle, *Nichomachean Ethics*, Book 2, chap. 4.
68. Ibid., Book 2, chap. 7.
69. Conrad C. Crane, "Beware of Boldness," *Parameters* (Summer 2006), p. 96.
70. Carl Sandberg, *Storm over the Land* (Old Saybrook, Conn.: Konecky and Konecky, 1939), pp. 150–51. Owens offers a radically different interpretation of McClellan's actions, contending that McClellan willfully disobeyed Lincoln's orders because McClellan disagreed with Lincoln about the desired end state: Lincoln wanted to preserve the Union; McClellan wanted to minimize the killing and end the war through accommodation with the Confederacy ("Rumsfeld, the Generals, and the State of U.S. Civil-Military Relations," p. 75). If Owens is correct, McClellan was morally wrong. His duty to the Constitution afforded him only two morally viable choices: obey Lincoln's lawful orders to prosecute the war aggressively or resign.
71. Toner, *Morals under the Gun,* pp. 117–18, cites both McMaster and Timberg.
72. Robert Timberg, *The Nightingale's Song* (New York: Simon and Schuster, 1995), pp. 415–17.
73. Smith, "Why Few Top Military Officers Resign on Principle."
74. Neil A. Lewis, "Military Lawyers Prepare to Speak on Guantanamo," *New York Times,* 11 July 2006.
75. Kaplan, "The Revolt against Rumsfeld."
76. Aristotle, *Nichomachean Ethics*, Book 2, chap. 7, and Book 3, chap. 10.
77. Toner, *Morals under the Gun,* pp. 123–42.
78. Varela, *Ethical Know-How*.
79. Carroll Kilpatrick, "Nixon Forces Firing of Cox; Richardson, Ruckelshaus Quit," *Washington Post,* 21 October 1973, p. A1.
80. Edward Weisband and Thomas M. Franck found this was the primary reason more political appointees did not resign to protest policies with which the appointee disagreed (*Resignation in Protest* [New York: Viking, 1975], preface). Extensive anecdotal evidence suggests the same is true for military officers; the armed forces, for the career officer, constitute a highly politicized system in which service reputation often makes or breaks an officer's career.
81. Ibid., p. 3.
82. Smith, "Why Few Top Military Officers Resign on Principle."
83. There is no similar cost for three- and four-star officers with thirty years of service who depart in protest; they receive the same pay as two-star retirees with thirty years of service, because of caps on executive compensation. Ibid.
84. Avins, "Right of Military Officers to Resign," pp. 431–61.
85. Owens, "Rumsfeld, the Generals, and the State of U.S. Civil-Military Relations," provides several examples of officers acting immorally in response to policies with which they disagreed (pp. 69–70).
86. Adapted from a discussion of options that civil servants have when facing the same type of situation in Weisband and Franck, *Resignation in Protest,* p. 55.
87. Ibid., p. 8.
88. Gordon and Trainor, *Cobra II,* p. 502.
89. Weisband and Franck, *Resignation in Protest,* p. 91.
90. Cook, *The Moral Warrior,* p. 64.
91. Ibid., p. 93.
92. Frankel makes this same point with respect to political appointees (*High on Foggy Bottom,* pp. 220–21).

93. For an explanation of this dynamic, see William H. Whyte, *The Organization Man* (New York: Doubleday, 1956).
94. Smith, "Why Few Top Military Officers Resign on Principle."
95. For the only set of exceptions to this presumption, see the discussion of the second option below.
96. Newbold, "Why Iraq Was a Mistake"; cf. Gordon and Trainor, *Cobra II,* pp. 128–34.
97. The First Amendment to the Constitution protects the free exercise of religion and prohibits the establishment of any religion.
98. Weisband and Franck, *Resignation in Protest,* p. 84.
99. Owens, "Rumsfeld, the Generals, and the State of U.S. Civil-Military Relations," pp. 70–71.
100. Frankel, *High on Foggy Bottom,* p. 112.
101. Owens, "Rumsfeld, the Generals, and the State of U.S. Civil-Military Relations," pp. 70–71.
102. Weisband and Franck, *Resignation in Protest,* p. 168.
103. Newbold, "Why Iraq Was a Mistake."

PURPLE MEDICINE

The Case for a Joint Medical Command

Capt. Arthur M. Smith, MC, U.S. Navy Reserve (Retired), Capt. David A. Lane, MC, U.S. Navy, and Vice Adm. James A. Zimble, MC, U.S. Navy (Retired)

In response to a broad set of complex national security challenges of the twenty-first century, the Quadrennial Defense Review (QDR) report of February 2006 advised that all the organizations, processes, and practices within the Department of Defense be given a high degree of agility, flexibility, responsiveness, and ultimately effectiveness in supporting the joint war fighter and future national defense goals. In that connection, the 2006 QDR recommends that medical support be likewise aligned with emerging joint force employment concepts. Indeed, the Department of Defense, in conjunction with the chairman of the Joint Chiefs of Staff, had already been directed to develop an implementation plan for such a unified structure, the Joint Medical Command. An antecedent clause in the Department of Defense Program Budget Decision 753 of 23 December 2004 laid the conceptual groundwork. It directed that a plan for a Joint Medical Command be accomplished by the fiscal year 2008–2013 Program/Budget Review. How can this intention be best brought to fruition?

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The organizational structure of the present military hospital system predates World War II, when each service provided for all of its own health care.[1] In the sixty years since the conclusion of that conflict, there have been numerous proposals for a unified medical command structure. Largely due to cost-containment pressure exercised by the executive branch, Congress,

and the services themselves, some cooperation has evolved in the delivery of peacetime health care to eligible Department of Defense beneficiaries in a framework known as the Military Health System (MHS). During this time no less than fifteen federally sponsored studies and numerous scholarly reports have examined the MHS, and the overwhelming majority has proposed the creation of a unified medical command.

One of the more recent recommendations is found in section 726 of the National Defense Authorization Act for fiscal year 2000, mandating a study of not only the expansion of joint medical operations but an assessment of the merits and feasibility of establishing a joint command. It calls for an examination of the potential for creating a joint medical command endowed with comprehensive budgeting authority, a joint training curriculum, and a unified chain of command. This inquiry would further identify areas of military medicine in which joint collaborative functions might be facilitated, including organization, training, patient care, hospital management, and budgeting. The act appropriately held that in order to provide the existing combatant commands with health-services support across the operational spectrum, a new, separately resourced, and functional medical or health-services command should be created, on a level with the current unified and specified commands. On another level, however, it remains to be seen whether the services themselves will finally take into account medical support requirements that are realistically necessary to meet operational demands of the twenty-first century, and the means by which these can be implemented in an effective and harmonious fashion. Indeed, however much lip service is given to the concept of cooperation, their separate budgets mean substantial competition. Still, a command structure that enhances teamwork rather than conflict would help, even if budget development remains primarily a service responsibility. True team planning, as well as the articulation of requirements and their priorities, would result if emanating from a joint or unified command. However, there will be no changes in the posture of the Department of Defense (DoD) toward medical support until this critical element of flesh-and-blood personnel support is recognized and appropriately represented as an essential element of "putting ordnance on target." This is further exemplified by the traditional line-leadership modus operandi of consistently deploying the "medics" too far behind the "shooters." Too many Time Phased Force Deployment Lists* have been corrupted by lowering the planned priority of medics in the deployment queue. Lack of a day-to-day presence in the highest circles of the Joint Chiefs is a

The Military Health System requires an organizational overhaul. A radical restructuring is necessary.

* Or TPFDLs, basic logistical tools for logistical deployment planning.

handicap. A joint medical commander on equal footing with the other joint commands, unified and specified, would more effectively address these many challenges.

THE MISSION OF THE MILITARY HEALTH SERVICE

The MHS currently includes organizations tailored to distinct but related tasks: maintaining deployable personnel as well as medically unique units for implementing the "readiness mission"; managing medical treatment facilities (hospitals and clinics); and facilitating managed-care support contracts—the "benefit mission." In essence, the military health system has concurrent responsibilities for maintaining readiness of health care personnel to provide medical support to military operations and likewise providing a comprehensive health benefit to at least nine million beneficiaries, including active-duty personnel, retirees, survivors, and their dependents. In support of these responsibilities, the Defense Department operates one of the largest and most complex health care organizations in the nation. Including overseas facilities, the three services operate about seventy hospitals and over eight hundred clinics (411 medical and 417 dental). The benefit and readiness missions are inextricably linked by the fact that the same medical personnel are used for both.

The Military Health System is funded through a single, consolidated appropriation, the Defense Health Program. Since the creation of the program in 1992, the Assistant Secretary of Defense for Health Affairs (ASD/HA) has been the program manager for all fiscal resources used to provide medical care in garrison.[2] Over the years, the assistant secretary has been given enhanced authority for resource management and contracting, the latter executed through the TRICARE Management Activity. In contrast, authorizations and funding for military personnel, including those in the medical services, are resourced by Congress directly to the services. The services also receive direct appropriations to pay for health services delivered in operational settings, including training, exercises, and humanitarian assistance, etc., as well as war. These resources flow through the service chiefs to both line and deployable medical units via the operational chains of command.

To represent the "stakeholders" perspective in the Defense Health Program, a Defense Medical Oversight Committee was created in 1999. It was used to provide top-level oversight and efficiency that were previously lacking. That committee has now been superseded by two groups: the Senior Military Medical Advisory Council, with membership including, among others, the ASD/HA and the surgeons general; and the Military Health System Executive Review Committee, chaired by the Under Secretary of Defense for Personnel and Resources. The latter's membership comprises the Assistant Secretary for Manpower and

Reserve Affairs of each of the three services; the vice chiefs of the Army, Navy, and Air Force; the Assistant Commandant of the Marine Corps; the DoD comptroller; the ASD/HA; the director of the Joint Staff; and the director of Program Analysis and Evaluation. The surgeons general and the other agency representatives are ex officio members.

These efforts may have enhanced interservice cooperation, but they have by no means created "jointness" among the medical departments. Indeed, the tradition of independence, even competitiveness, between the services remains the biggest obstacle to developing a joint approach among the medical departments, even for the peacetime benefit mission.

MILITARY MEDICINE: DUAL RESPONSIBILITIES AND COMPETING IMPERATIVES

The requirements for maintaining qualified personnel who have skills and knowledge relevant both in garrison hospital settings and in support of military operations make medical readiness unique from other military disciplines. The development and maintenance of these distinct skills call for training and experience in military medical treatment facilities (MTFs) as well as within deployable units. Although the two missions complement one another in some ways, joint pursuit of both readiness and benefits involves a complicated set of trade-offs and management challenges. A large standing force is required to attain and maintain medical readiness, particularly during wartime; accordingly, many active-duty personnel—physicians, nurses, and other health care personnel—must be employed in regular patient care during peacetime in order to keep their clinical knowledge and skills current. Service at MTFs, where health care for most beneficiaries is provided, thereby contributes to readiness, by keeping active-duty personnel at peak clinical performance. Likewise, caring for the families of mobilized personnel constitutes an employer health benefit to military personnel and their family members during active service, as well as after retirement.

However, the military readiness mission involves deploying these same medical personnel (and necessary equipment) to support military forces throughout the world in wartime, peacekeeping, and humanitarian operations, and during military training. To do so requires ongoing training not only in specific medical specialties needed for wartime but in military skills as well. Furthermore, some medical skills have only military applications, such as aspects of undersea and flight medicine, or facility with stabilizing combat casualties under austere conditions for rapid evacuation through an echeloned system.

Manning and training requirements drafted by the services envision continuous staffing of deployable medical units at levels sufficient for maintenance of

equipment, as well as military and medical-specific unit training in combat conditions. They call for personnel qualified to support medical readiness across the spectrum of military activity—personnel with medical training, clinical experience, military training, and operational experience. Consequently, some active-duty health care personnel must regularly leave the MTFs to join deploying medical units. Experience in operational units is also important for learning to communicate with supported units and earning their trust and respect. Such relationships point to an important cultural component for maintaining readiness. Likewise, medical personnel must become accustomed to the constraints of operational environments and understand their medical ramifications while maintaining proficiency.

From all these mandates, the operative reality of competing imperatives arises. The two missions draw upon overlapping resources. The readiness mission must be balanced against the demands of the benefits mission. But if personnel are to practice medicine in operational contexts, often in austere conditions, under high stress, and with limited resources, they must train with operational units. Unfortunately, over the last fifty years the costs of providing peacetime health care for eligible beneficiaries have consumed an increasing proportion of military health service resources. Today, the MHS not only gives priority to the benefit role but focuses heavily upon reduction of beneficiary health care costs—when in fact those costs should be accepted as part of the price of being medically prepared for going to war.

COORDINATING PEACETIME HEALTH CARE WITH THE OPERATIONAL MISSION

A key consideration when restructuring the MHS of the future, then, will be a firm commitment to optimizing the coordination required to execute both missions effectively. Allocation of personnel between the two constitutes a challenge for the MHS, and it would be a major responsibility of any new joint or unified health services command.

The Present Status

The medical readiness mission is unique, and few lessons from the civilian sector are applicable. Among its requirements is the ability to coordinate the many and varied elements of DoD. The Military Health System's current diffuse management structure appears to lack this ability. For example, although a medical treatment facility can control the readiness activities of its personnel, such as individual skills training, many objectives (for instance, materiel maintenance and unit training) can be met only within deployable medical units. Furthermore, these operational units are often under nonmedical commanders, with no direct

medical chain of command. In these cases medical unit leaders are evaluated by line or support commanders, who might not appreciate or understand the competing issues they face.

The Need for Coordination

Presently, the services' medical departments have no centralized command and control, though their missions are essentially the same. This lack of unified command produces inefficiencies in manpower, resources, coordination, planning, and innovation. The services' semi-independent systems arguably cooperate to the greatest extent possible, under an organizational structure that makes them competitors for the same readiness and peacetime-benefit missions. This loose organization lends itself to inefficiency and poor resource management within such a large, complex health care organization. Furthermore, within each of the unified combatant commands (e.g., U.S. Central Command, U.S. Pacific Command, etc.) joint forces surgeons, although ostensibly responsible for coordination and integration of medical support among the services, have neither command authority nor staff empowered to synchronize and integrate truly what they are given by the individual services.[3]

Greater interoperability and interdependence could result from reducing redundancies, conserving resources, and initiating collaboration. A desirable degree of coordination is most likely to emerge from a unified structure with clearly defined lines of authority, responsibility, and accountability, supported by both appropriate and timely information, performance evaluation, and suitable incentives. What is needed is an unambiguous assignment of responsibility, adequate resources, and authority to ensure readiness, as well as mechanisms for coordinating all this with peacetime health care, given the duality of the military medical mission.

Searching for Precedents

Any new joint health-service entity must be capable of supporting military operations, whether they are single-service, joint, or combined. Consequently, a key driver of organizational structure must be the provision for institutional and situational coordination dedicated to readiness. Its leadership will require the information, authority, and responsibility to allocate any resources necessary for efficient readiness training of DoD medical personnel.

In the U.S. Special Operations Command (SOCOM), the unified commander has certain responsibilities and authority in special operations activities, whether carried out within the command or not: programming and budgeting, budget execution, acquisition of specialized assets, training, determining and validating requirements, and monitoring the services' personnel management activities. A unified medical command would be similar in that it too would

have broad continuing missions and be composed of forces from all military departments; accordingly, its commander should be given similarly expanded responsibilities and authority. Specifically, all Defense Health Program funding would be apportioned to the unified command instead of to the services. This would ensure coordination between medical readiness and TRICARE management, and encourage a unified approach to the readiness mission. The SOCOM model would also give the unified medical commander oversight of the services' management of medical personnel. The services would retain responsibility for organizing, manning, and equipping operational medical units, while deployable human assets would be assigned to the unified commander (who might choose to keep them within their current line organizations if that is most operationally effective). Also, medical personnel and activities organic to the supported operational unit would most likely remain outside the joint purview. Some of these functions are thoroughly integrated within nonmedical units—for example, Marine battalion aid stations and warship sickbays.

U.S. MEDICAL COMMAND

The Commander, U.S. Medical Command, would likely advise the secretary of defense and chairman of the Joint Chiefs of Staff on uniformed military medical issues while working with the Assistant Secretary of Defense for Health Affairs on policy. The joint U.S. Medical Command would, as implied above, be the optimal agency for centralizing the budget for readiness and medical activities. A unified command of this size would be best commanded by a four-star flag or general officer (whether from the line or medical communities would be a determination best made by Defense Department leadership). Thus, the commander would outrank the surgeons general of the services and would also be in the best position to consolidate health plan authority for TRICARE. This model envisions dual roles for the surgeons general—as medical component commanders reporting to the unified medical commander, and as senior medical staff officers reporting to their respective service chiefs.

The U.S. Medical Command structure must transform the MHS into an integrated team with service and TRICARE components. The task of establishing the "wiring" for this integration will be enormous. It requires construction of a network of command relationships to articulate budgetary requirements and establish end strength and infrastructure size, while ensuring the requisite links between the services and TRICARE contractors. Likewise, it must align accountability and authority with responsibility and resources for both these readiness and benefit missions. The command must also effect a balance between health care (prevention and treatment), education, and research.

The proposed unified medical command needs to give the Military Health System the resource efficiency and operational flexibility it requires to change the ways in which it provides force protection in support of the combat forces and the manner in which it does business and works with others—specifically by relieving the Assistant Secretary of Defense for Health Affairs of responsibility for the benefit mission, including integration with the TRICARE health plan. Also, whereas line-medical relationships at the operational and tactical levels have traditionally been mediated by service component medical commands, the command relationship between U.S. Medical Command and service medical departments will enhance doctrinal jointness, by centralizing command and control without sacrificing operational control by the services. It will also enhance technical and intellectual jointness, by capitalizing on the synergies between the benefit and readiness missions.

A U.S. Medical Command structure must transform the MHS into an integrated team with service and TRICARE components.

The arguments against a unified medical command are centered upon the uniqueness of each service's mission, environment, and role. Indeed, while the benefits of combining training activities presumably include lower costs from economies of scale and improved interoperability, the reality of service-specific training does exist, and it must be addressed before training is combined. The relationships between each service's medical and line units must likewise be fostered and sustained. In general, any reorganization of the health care system must identify and give careful consideration to medical support that is unique to a specific service or mission, while it attempts to ensure appropriate levels of interoperability.

The appropriate assignment of units and personnel would need to be determined before a U.S. Medical Command could be established. In an ideal setting, this would require extensive negotiation and agreement among the stakeholders. In reality, because of the differences between the existing formal organizational structures of the medical departments of the three services, this will require a mandate by law. Once in place, the concept would create a separate chain of command for much of the medical readiness mission under the joint commander's overall authority. All deployable units, other than those that remain organic to line commands, would report through service component commands to either a deputy commander for readiness or directly to the unified medical commander. The resources needed for readiness would be identified and allocated to the readiness components. This would include personnel assigned to deployable units and, ideally, personnel assigned to medical treatment facilities but available to the deployable units when needed.

As noted above, ASD/HA currently manages the large Defense Health Program budget (approximately $36 billion per year) through the TRICARE Management Activity. (The Defense Medical Oversight Committee had been used to provide some level of oversight and efficiency that was previously lacking. This has now been superseded, also as noted previously, by both a Senior Military Medical Advisory Council and a Military Health System Executive Review Committee.) The budget is managed by a staff and through the three military services. The staff of the U.S. Medical Command would encompass a TRICARE Management Activity and assume these responsibilities, including contracting support. The U.S. Medical Command would provide the needed command and control, maintain (no doubt) civilian contracting authority, and free the Assistant Secretary of Defense for Health Affairs to focus upon policy formulation and oversight. The TRICARE Management Activity itself would be structured within regional medical organizations to coordinate care between the MTFs and regional contractors, and it would ultimately be responsive to the needs of the three surgeons general, who would serve in the joint command as service component commanders.

Responsibility for health matters at an installation, and for the health of all assigned military personnel, would continue to be the responsibility of the medical treatment facility commander, as would management of MTF personnel resources, which has great impact upon operational readiness. The surgeons general would oversee medical readiness in their services, being in the best position to see that the MTF commanders do not neglect their commitment to operational readiness in order to enhance the "productivity" of their health care services. The surgeon general, in his or her capacity as chief medical officer for each respective service, would monitor and retain authority over the MTFs in maintaining the health of active-duty personnel, providing care to families, and supporting readiness training and deployment. In essence, the surgeons general, as component commanders, would have linkages to both the service chiefs and to the commander of the unified medical command—the former for operational control and the latter for program development, personnel management, and training. Having the same individual in both chains should enhance both balance and clarity of mission.

The Military Health System requires an organizational overhaul. A radical restructuring is necessary, primarily to ensure sustained medical readiness but also to improve cost management and achieve better integration of health care delivery across the component services. With a budget expected to exceed $50 billion by 2010 and a mandate to provide care for more than nine million people, military medicine needs a specified joint medical commander "with portfolio"—that is,

with direct access to the highest levels of military and civilian Defense policy making. The ultimate mission of the U.S. Medical Command would be to articulate effectively the requirements for current and future medical support of an increasingly joint and interdependent defense establishment, and likewise to ensure their implementation.

NOTES

1. Susan D. Hosek and Gary Cecchine, *Reorganizing the Military Health System: Should There Be a Joint Command?* (Santa Monica, Calif.: RAND, 2001), pp. xi, 5–23.
2. Ibid., p. 6.
3. Darwin D. Kumpula, *Joint Medical Command: Do It Now* (Carlisle, Pa.: U.S. Army War College, 2005), p. 8, available at www.strategicstudiesinstitute.army.mil/pdffiles/ksil247.pdf.

REVIEW ESSAY

BUILDING AN INTELLIGENCE COMMUNITY

Derek S. Reveron

Negroponte, John. *National Intelligence Strategy.* Washington, D.C.: Office of the Director of National Intelligence, 2005. 32pp.
Negroponte, John. *Strategic Human Capital Plan: An Annex to the US National Intelligence Strategy,* Washington, D.C.: Office of the Director of National Intelligence, 2006. 47pp.
(Both documents are available online at www.odni.gov.)

Spurred by the 9/11 terrorist attacks, the poor analysis of Iraq's weapons of mass destruction programs, and numerous studies, the Intelligence Reform and Terrorism Prevention Act of 2004 created the Office of Director of National Intelligence (ODNI). Run by former ambassador John Negroponte, ODNI is an independent agency meant to oversee U.S. government intelligence activities and to transform the American intelligence community. Guiding Director Negroponte's efforts are two very different lessons learned from 9/11. First, that attack has been characterized as a failure to "connect the dots." If only intelligence agencies had shared their data, analysts could have predicted al Qa'ida's plan to attack, though the dots were not specific enough to connect the overall plan with individual names. To share intelligence, to "connect the dots," is now a national priority. Consequently, the slogan is "share, share, share." The second lesson, derived from prewar intelligence on Iraq, offers a contradictory lesson—to "collect more dots." While there was

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human intelligence informing of Iraq's weapons programs, it proved to be wrong. The slogan, however, is "collect, collect, collect."

Given these lessons and guiding legislation, ODNI is tasked to integrate U.S. intelligence, bring depth and accuracy to analysis, and ensure that resources generate future capabilities. However, the task to unify sixteen different agencies across six different departments will not be easy. With such a Herculean effort before him, Negroponte is well positioned to offer insight into the first-ever *National Intelligence Strategy* and its accompanying *Strategic Human Capital Plan.* Both documents outline mission objectives that will provide better intelligence and enterprise objectives to transform the intelligence community.

The *Strategy* includes topics that have been long-standing intelligence requirements, such as warning, counterproliferation, and counterterrorism, problems that transcend the private sector and touch all levels of government: federal, state, local, even tribal. This all-encompassing approach will likely have a dramatic impact on an intelligence community that fiercely guards its sources and methods. While it is relatively easy for the CIA and FBI to share information, there are legal, cultural, and technological factors that prevent the CIA from sharing intelligence with the Rhode Island State Police, for example. Further, though much attention has been focused on sharing intelligence within the U.S. government, the *Strategy* also recognizes the importance of sharing intelligence across national boundaries. Since 9/11, the United States has cultivated intelligence relationships with traditional allies like the United Kingdom, new allies like Russia, and nontraditional partners like Yemen. Intelligence sharing is not only essential in the war on terrorism but also provides a nonpublic way for governments to cooperate with the United States.

Perhaps as a reflection of his diplomatic career, Negroponte notes that the intelligence community must identify opportunities for democratic transformation, and he warns of state failure. Although the promotion of democracy has been a national priority for several decades, it is seldom linked to the intelligence community. While the community's role may be misinterpreted as limited to direct action against dictators or supporting regime change, it is more likely that the intelligence community will, for example, build on its decade-old partnership with the Political Instability Task Force at the University of Maryland. This task force attempts to understand why states fail, which should result in aid packages targeted to ward off state failure. As President Bush acknowledged in his 2002 National Security Strategy: "America is now threatened less by conquering states than we are by failing ones." The challenge for Negroponte is to find a balance between potential peer competitors (an institutional preference) and states where American intervention will likely occur.

The *Strategy* makes it clear that the United States has interests throughout the globe. Negroponte states that "the Intelligence Community should develop, sustain, and have access to expertise on *every region*, *every transnational security issue*, and *every threat* to the American people." With such a large goal, the strategy emphasizes drawing from experts outside the government and upon open-source data.

The *Strategic Human Capital Plan* outlines an approach to build an agile, all-source force, win the war for talent, and create a culture of leadership at every level. The *Plan* is also expected to determine the "optimum mix of military, civilian, contractor, and other human resources" necessary to support the objectives detailed in the strategy.

The *Plan* is marked throughout by sober assessment of the challenge for real human capital. The intelligence community is handicapped by a lengthy hiring process, stringent clearance requirements that generally exclude potentially valuable bilingual noncitizens, and a personnel system that is not designed for a new generation of workers who frequently change jobs. The *Plan* also notes that the intelligence community faces "critical shortfalls of experienced mid-career professionals," because it skipped "a generation of new hires." Also nipping away at midcareer personnel are contractors who recruit their own employees, already cleared and trained at government expense, and then "lease" them back to the government at considerably greater expense. Finally, the *Plan* notes that in spite of its name, the intelligence community (IC) is no community at all. By building a "national intelligence service," integrating training, education, and career development, and fostering an ethos of service, integrity, and accountability, Negroponte hopes to "bring more Community-wide coherence and cohesion than ever before to the way IC agencies lead and manage their people."

Negroponte's assignment to transform the intelligence community comes at a difficult time, when "adversarial states have learned to mask their intentions and capabilities" and "terrorists and other non-state actors use commonplace technologies to boost their striking power and enhance their elusiveness." Equally daunting is the prospect of developing human intelligence sources for hard targets. Doing so in a totalitarian country like North Korea or Iran is unrealistic. Those countries' intelligence services deprive American operatives of recruitment opportunities. The intelligence community has learned how difficult it is to penetrate even English-speaking urban-ecoterrorist groups in the United States, let alone a Pashto-speaking tribe in Pakistan. Negroponte recognizes these challenges and sees developing "innovative ways to penetrate and analyze the most difficult targets" as a core objective. These ways include creating "red teams" to get "inside the heads" of potential adversaries and developing

relationships with foreign intelligence services that might be better positioned to access hard targets.

The ultimate importance of these documents, and his own tenure, will depend on Negroponte's ability to lead the way to change in a very large, disparate intelligence community. Without direct budgetary control, he will have to inspire, cajole, and perhaps somehow coerce the leaders of the sixteen different intelligence agencies to cooperate. With the Undersecretary of Defense for Intelligence reforming defense intelligence and "protecting defense assets," Negroponte will likely focus on the civilian agencies. It is too early to say how a former CIA director as the new secretary of defense will affect this process. Ultimately, Negroponte's success will be based on the benchmarks listed: "to provide accurate and timely intelligence and conduct intelligence programs and activities directed by the President" and "to transform our capabilities faster than threats emerge, protect what needs to be protected, and perform our duties according to the law."

We are unlikely to see widespread change soon. It will not be until fiscal year 2008 that Negroponte's objectives will be fully reflected within the different agencies. In fact, with the parallel transformation of intelligence agencies and the competing priorities among defense, civilian, and law enforcement intelligence agencies, we may never see the unity that the Office of Director of National Intelligence was intended to bring into being.

BOOK REVIEWS

A NEVER-ENDING STUDY

Gray, Colin S. *Strategy and History: Essays on Theory and Practice.* Cass Strategy and History Series, 15. New York: Routledge, 2006. 234pp. $41.95

This volume is largely successful not only in emphasizing the continuity and wisdom of Colin Gray's long-standing defense of the study of strategy but in capturing his delight in skewering the latest intellectual fads in both American and British security theory. *Strategy and History* is a rich and occasionally provocative read for any student of strategy, military issues, or international relations, and it reinforces the need to study strategy—the relationship between military force and desired political objectives.

The introduction and very brief conclusion can stand alone as a valuable beginning to the study of strategy and its core themes. The first section examines the key issues in strategic studies—the meaning of strategy itself and the crucial use of history as a tool to understand strategy and think strategically. The second section examines major contemporary debates in the field of international security—nuclear targeting and deterrence in the 1970s, the revolution in military affairs (RMA) debate of the 1990s, and the broader issue of arms control. The third, and arguably most adventurous, section illustrates the multidisciplinary nature of strategy, looking at geography, culture, and ethics. The first section—representing Gray's lifelong defense of the study of strategy—is, not surprisingly, the strongest and most cogent; the other two sections are more iconoclastic and, at times, more difficult for the average reader.

Section 1 contains five mutually reinforcing chapters, clearly articulating not only the inherent difficulty in serious study of strategy but its immense and ongoing relevance for the academic, policy maker, and war fighter. The first chapter, written in the 1970s, attacks the Cold War study of strategy in the United States as both ahistorical and technologically determinist—a theme Gray has continued to hammer relentlessly (and properly) throughout his career. This chapter, combined with the second essay in section 2 (on the RMA debate) and Hew Strachan's recent article in *Survival* on the co-optation of the concept of strategy, constitutes a devastating counterargument to many of the core assumptions of current American

strategic thought, in both academe and the policy world. The second chapter addresses both the strengths and weaknesses of "new security" thinking in academe in the 1990s. This chapter could be of particular value to political scientists and international relations specialists.

The third, fourth, and fifth chapters of this section should be required reading for the modern war fighter and other practitioners. These sections focus on the importance of seapower and maritime strategy, on the enormous complexities involved in making strategy, and on the paradoxes inherent in the principles of war and in efforts to adapt them to the changing international environment. Gray notes that the principles of war are actually principles of *warfare*—intimately connected with the tactical and operational levels of war but remote from the fundamental issue of waging war to achieve *political* ends.

The second and third sections do not quite achieve the high standards of the first. The second section's focus on nuclear strategy, on the RMA debate, and on arms control may seem antiquated to today's reader. Nevertheless, the notions that the RMA debate failed to consider adversary responses to American technological superiority and that arms control "is as likely to fuel political antagonism as prevent or alleviate it" still have relevance to policy today. The third section's first chapter notes the salient impact of geography on strategy—an obvious point, perhaps, but one exemplified most recently by the problems of carrying out a counterinsurgency campaign in an Iraq with insecure land borders on all sides. The third chapter is a laudable effort to explain morality and ethics in international relations from the viewpoint of a neoclassical realist. The middle chapter, on strategic culture, is the most daring, and in some respects the most disappointing. Gray attempts to make a very complex argument regarding the definition of strategic culture, but much of the chapter is focused on a debate with Iain Johnston, which readers unfamiliar with this literature may find particularly daunting. This unusual chapter, however, does not detract from the overall value of the volume, which is excellent not only as an introduction to those unfamiliar with the study of strategy but also as a useful addition to the libraries of practitioners, academics, and military officers.

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Haqqani, Husain. *Pakistan: Between Mosque and Military*. Washington, D.C.: Carnegie Endowment for International Peace, 2005. 380pp. $17.95

Five years into the U.S.-led global war on terror, Pakistan remains a cornerstone of U.S. strategy in defeating the Taliban and rooting out al-Qa'ida. Despite the importance of Pakistan, it is a country that poses challenges for the United States. A key challenge is the dominant role of the military, which seeks to balance its commitments as a valuable U.S. partner with its role as a guardian of the country's Islamic identity through its close relationship with Pakistan's religious establishment. How Pakistan manages these commitments has serious implications for U.S. policy. Fortunately, Husain Haqqani

has come to our aid to help us understand this complex political dynamic.

Haqqani has an insider's view of Pakistani politics, having served as an adviser to three prime ministers, a diplomat, a political commentator, and a scholar of South Asian politics at the Carnegie Endowment for International Peace. This experience well qualifies him to guide the reader through the complex and, at times, confusing relationship between the Pakistan military, the civil bureaucracy, and the religious establishment.

Haqqani chronicles the early struggles for Pakistan's formation and makes a convincing case that the lack of a clear vision for Pakistan's identity in the early period of independence opened the door for the military, the civil bureaucracy, and Islamic ideologues to play dominant roles in Pakistan's political culture. The largely secular ruling establishment acknowledged Islam as the symbol of unity but did not define how Islam would manifest itself within society. What were the limits (if any) on religion in politics? How would relations between Muslims and other religious groups be managed if Islam was the defining idea of Pakistan? Whose interpretation of Islam would dominate the new country? Questions such as these were never confronted; the new leadership was too preoccupied with others, such as establishing a government, developing an economy, raising an army, and developing a civil bureaucracy.

Haqqani explains how the inability of Pakistan's founders to delineate Islam's place in society turned the faith into a political tool for successive military and civilian leaders. Zulfikar Ali Bhutto, Pakistan's secular civilian prime minister in the 1970s, began the cynical employment of Islam in politics by attempting to cross it with socialism. It was Bhutto's courting of the Muslim clergy with "Islamic socialism" that opened the door into politics for Pakistan's religious establishment.

Bhutto was overthrown in 1977 by General Zia ul-Haq, a man of strong religious convictions. During his eleven-year rule he transformed Pakistan's identity through a campaign of Islamization of law and society. This process extended throughout the military and spread to the Inter-Service Intelligence Directorate, which came to be dominated by officers who believed in Zia's aims. The Soviet invasion of Afghanistan provided Zia an opportunity to support selected mujaheddin groups fighting the Soviets, as long as they aligned with Zia's religious views and vision for Afghanistan. By the time Zia died in an unexplained plane crash in 1988, Pakistan had, according to Haqqani, changed to an "ideological state guided by a praetorian military." The centers of power were by now heavily Islamized, through the influence of the religious establishment within the civil bureaucracy and the military.

Haqqani argues that civilian leaders like Benazir Bhutto and Nawaz Sharif could not reverse the Islamization of Pakistani politics. Instead, both of these leaders tried to coexist with a military heavily influenced by the religious establishment. Both leaders failed, because they eventually ran afoul of the influential military establishment that believed they threatened its position of power.

As he skillfully explains these dynamics, Haqqani also weaves in their effect on the United States–Pakistan relationship.

During the first decade after its chaotic birth, Pakistan sought to form a strategic alliance with the United States. The bilateral relationship during the Cold War was based on U.S. interest in a strong anti-Soviet ally in Asia and Pakistan's desire for backing against India. This incongruence set up the two countries for misperceptions and unfulfilled expectations that have lasted to the present day.

The relationship was further complicated in the period after the Cold War as U.S.-Pakistan ties frayed over Pakistan's nuclear weapons program and the Soviet threat disappeared. As the United States began to scrutinize Pakistan more closely for democratic practices and nuclear proliferation, the pro-American tilt within the Pakistani military began to wane. A series of perceived slights (such as Washington's refusal to deliver F-16 aircraft after Pakistan had paid for them) and the effective cessation of the bilateral military relationship contributed to this collective attitude. Although the terrorist attacks of 11 September 2001 resurrected the relationship, it remains to be seen whether the current bilateral cooperation can be sustained for the long term, given the various pressures that the current president, General Pervez Musharraf, is facing.

Haqqani ends the book with a chapter that summarizes his findings and offers suggestions for U.S. policy. Although his diagnosis of U.S. policy toward Pakistan is sound, we would benefit from a bit more detail about some of his policy proposals. That is a minor shortcoming; Haqqani has provided an excellent work on understanding the nexus between Pakistan's religious establishment and military, and on the implications of this relationship for Pakistan's future.

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Brown, Malcolm, ed. *T. E. Lawrence in War and Peace: An Anthology of the Military Writings of Lawrence of Arabia.* London: Greenhill, 2005. 320pp. $39.95

This is a timely book. It is a collection of rarely read wartime reports and post–World War I articles that wrestle with the consequences of war and were written by the British officer T. E. Lawrence, otherwise known as Lawrence of Arabia, one of the greatest theoreticians and practitioners of modern guerrilla warfare.

Lawrence, of course, is best known for his book *The Seven Pillars of Wisdom,* which describes the British-inspired-and-supported Arab revolt against their Ottoman suzerain. Lawrence is back in vogue again, which is not surprising given the involvement of the United States in a seemingly intractable and protracted insurgency in Iraq. Many officers, officials, and academics are turning to *The Seven Pillars of Wisdom* for nuggets of information about insurgency warfare, or, indeed, about the Arabs themselves. In his foreword, Professor Michael Clarke of King's College London says that the book "has become an oft-consulted work among military officers presently struggling with the attempt to create order in Iraq." *The Seven Pillars of Wisdom* is wonderful prose, but as Malcolm Brown puts it, the work is "no pushover even for the most adept of skim-readers." It is in

fact more often quoted than read, and I suspect few people get much beyond its key chapter on the principles of insurgent warfare.

That is where this collection comes in. It is not only timely, given the renewed interest in this unorthodox officer and his theories on guerrilla warfare, but extremely valuable for Lawrence's in-depth analyses of the military situation in the Arabian Peninsula and of the differing fighting styles of an irregular force like the Bedouins and a conventional modern army like that of the Turks.

The book's first section is a valuable and detailed introduction by the editor, putting Lawrence into historical context as a guerrilla warfare theorist and practitioner. The heart of the book is divided into two parts. Part 1 shows us Lawrence caught up in the rigors and challenges of war. It consists of his dispatches on the irregular war in the peninsula that appeared in a British intelligence publication in Cairo, the *Arab Bulletin*—a periodical that thanks to Lawrence and many colleagues was not sullied by turgid, army-style language.

Two superb dispatches in part 1 are essential for officers who want to understand irregular warfare. The first, titled "Military Notes," was written in November 1916. It brilliantly lays out the strengths and weaknesses of the irregular Arab forces facing the Turks. Understand their weaknesses and make use of their strengths and advantages, is what Lawrence is saying about these Arab units. The second dispatch, "Twenty-seven Articles," written in August 1917, tells how to deal with the Hejaz Arabs. It warns, "Handling Hejaz Arabs is an art, not a science, with exceptions and no obvious rules." (The Hejaz is the northwestern coastal zone of present-day Saudi Arabia, where most of Lawrence's campaigning took place.) This piece has come to the attention of many officers serving in Iraq, particularly those in advisory capacities with Iraqi forces and officials. However, it is not clear that they fully understand this caveat that Lawrence attached: "They [the articles] are meant only to apply to Bede [Bedouin]; townspeople or Syrians require totally different treatment." Clearly, the Iraqis are different from the Syrians and the Hejaz Arabs, whether Bedouin or urban dwellers. Lawrence makes clear the tremendous value of understanding the culture during war, something in which the United States has been particularly inept—not least in trying to suggest, whether implicitly or explicitly, that Lawrence's twenty-seven articles might unlock the secrets of Iraqi behavior.

Part 2 shows Lawrence trying to "cope with the consequences of war in the circumstance of peace." While much of it is of historical interest, a number of points are as interesting as the dispatches in part 1. I refer specifically to "Demolitions under Fire" of January 1919, which discusses the Arab insurgents' extensive use of sabotage against Turkish infrastructure in the Arabian Peninsula, particularly against the strategically important Hejaz Railway and its bridges. Equally informative is "Mesopotamia: The Truth about the Campaign" (August 1920); it brilliantly and scathingly castigates the British for their failures and their lies in Mesopotamia, a territory captured from the Ottomans and now known as Iraq. However, the two most important articles here are "Evolution of a Revolt," written in October 1920, and "Science of Guerilla Warfare," 1929. Both are readily available elsewhere, including online, but

Malcolm Brown has done a great service for those interested in Lawrence's ideas by including them here.

In conclusion, this is a superb addition to the literature on guerrilla warfare. I enjoyed reading it. Lawrence's prose and clarity of thinking and exposition made it doubly enjoyable.

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Symonds, Craig L. *Decision at Sea: Five Naval Battles That Shaped American History*. New York: Oxford Univ. Press, 2005. 378pp. $30

What history buff could possibly resist the subtitle "Five Naval Battles That Shaped American History"? Those so enticed will not be disappointed in Craig Symond's exceptionally well written and fascinating accounts of these American naval battles: Oliver Hazard Perry's far-reaching victory over the British in the 10 September 1813 battle for Lake Erie; the 8–9 March 1862 battle of Hampton Roads (which ended in a draw) between America's first ironclad ships, USS *Monitor* and CSS *Virginia*; the 1 May 1898 battle of Manila Bay; the 4 June 1942 battle of Midway; and the 18 April 1988 Operation PRAYING MANTIS in the Persian Gulf.

Because the American navy was absent, Symonds does not list the most crucial naval battle in American history, the early September 1781 battle of the Capes, in which a French fleet prevented the British from resupplying Lord Charles Cornwallis's besieged troops at Yorktown. Nonetheless, he provides a detailed account of this battle, describing it as "the battle that secured American independence." Symonds places special emphasis on crucial command decisions. In this case, he notes, for example, that at a critical moment the British commander, Rear Admiral Thomas Graves, hoisted a flag signal whose ambiguity resulted in failure to concentrate the fleet's fire on the French, who in large measure prevailed because of this blunder.

This book's considerable historical value resides as much in Symonds's highly interesting and detailed description of the British background as in the actual battles. For example, most of us learned in school that impressment by the British of American sailors into the Royal Navy was the prime cause of war in 1812—but I was surprised to read here that some ten thousand were so impressed. While we all knew about Perry's victory at Lake Erie and his famous report, "We have met the enemy and he is ours," few have a true idea of its significance. In Symonds's words, "Perry's victory secured the northwestern frontier for the United States"—the threat that greatly concerned us. Symonds's descriptions of the conditions in which men fought at sea are also masterful. This is especially so in his comparison of the conditions on sailing ships with those of the ironclads, *Monitor* and *Virginia*.

Symonds notes that in terms of casualties *Virginia* inflicted before *Monitor*'s arrival "the worst defeat in the history of the United States Navy until Pearl Harbor." The episode clearly spelled the end of an era in naval warfare. The lopsided 1898 victory over the Spanish at Manila Bay, for its part, left the United States "an acknowledged world power"

and an "empire." The close-run victory at Midway confirmed the primacy of aircraft carriers and ensured U.S. control of the western Pacific. PRAYING MANTIS was thrown in mainly to demonstrate that new U.S. weapons do work—albeit, in this case, against a rather feeble Iranian foe. Curiously, Symonds fails to note that a few months earlier, the battleship USS *Iowa* had dramatically demonstrated a far greater peacekeeping capability than the extensive, missile-equipped fleet he described.

WILLIAM LLOYD STEARMAN
Secretary of the Navy's Advisory Subcommittee on Naval History

Divila, Tony, Marc J. Epstein, and Robert Shelton. *Making Innovation Work: How to Manage It, Measure It, and Profit from It.* Upper Saddle River, N.J.: Wharton School, 2006. 334pp. $29.99

Innovation is one of the four pillars of the U.S. Defense Department's Transformation Plan. Innovation has nudged its way into the mission statements and strategies of most business and government organizations, because it is essential for competitive positioning and sustained performance. Yet in spite of executive proclamations and substantial investment, a majority of organizations report disappointing innovation results. *Making Innovation Work* does a thorough job of converting the concept of innovation into a practical management framework. Although the book is research-based and two of its authors are academics, it provides practical tools and techniques for managing the end-to-end innovation process. It also debunks several innovation myths, such as creativity and management discipline being incompatible. Examples and vocabulary are clearly geared to a business audience. There are several excellent books on military innovation, but most are analytical and retrospective. This is a "hands on" book about the management of innovation, and leaders of national security organizations will appreciate the relevance of the book's framework.

This book is geared to leaders who manage innovation in large successful organizations. Paradoxically, large successful organizations typically have the weakest innovation results, because innovation requires deviation from the practices and technology that have served them so well over the years. At times the book becomes a bit repetitive, and word or phrase usage can become confusing, but the liberal use of graphics and text boxes to deliver important insights, examples, and models is quite effective.

The authors' innovation model is a four-cell matrix. The two axes (Technology, Business Model) are subdivided into "New" and "Existing." The four cells categorize distinct types of innovation, labeled "Incremental," "Business Model Semi-Radical," "Technology Semi-Radical," and "Radical." An innovation project utilizing existing technology but employing a new way of conducting business is categorized as "Semi-Radical." An example is iPod/iTunes, which uses existing technology but dramatically alters the way music is acquired. This type of product is called a "disruptive innovation." It fundamentally changes the marketplace and the organization's competitive position in it. The authors' premise is that the category of innovation is an important consideration, since it sets the stage for

what the organization must commit in resources, capabilities, and management tools. For instance, incremental innovation reapplies existing technology and business practices. It can be delivered in a shorter time with less expense than radical or semiradical innovation, but it lacks the punch for competitive repositioning.

The authors' working definition of innovation is capturing creativity and then adding value so it benefits the organization. Their innovation framework is a sequence of integrated management decisions and actions. The first and most important decision is determining whether the innovation project is aligned with the organization's strategy and capabilities. There is extensive discussion about modifying an organization's culture so that it can sustain innovation. Every organization has what the authors call "antibodies," those rules, attitudes, procedures, and habits that insidiously suffocate new ideas. Leadership must provide management systems to support the innovation process, such as mechanisms to capture and evaluate creative ideas, ensure adequate resources, measure progress, and reward personnel. The authors repeatedly emphasize that the integrity of the innovation process and the results reflect leadership's skill and commitment.

The audience for this book is business executives. However, military and national security leaders will find practical recommendations and management techniques applicable for their mission. The book contains an extensive bibliography and references.

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Seiple, Robert A., and Dennis R. Hoover, eds. *Religion and Security: The New Nexus in International Relations*. Lanham, Md.: Rowman & Littlefield, 2004. 198pp. $65.00 cloth/$22.95 paper

Those serving in the military and foreign service stereotypically show scant professional interest in religion. Presumably the security and interests of states hinge on secular concerns. Merging religion with politics only complicates matters, often inviting violence, as wars of religion or terrorist acts of militant Islamists remind us. *Religion and Security* innovatively complicates such Westphalian dispositions, urging readers to appreciate the religious complexities of today's global security environment and to consider the possibilities that constructive religious engagement offers for citizens and states the world over. Yes, religion is part of the problem, we are reminded, but it is part of the solution as well. "There is, quite simply," the book argues in toto, "a positive nexus between religion and security, and the international community ignores it at its considerable peril." Why we have been slow to come to this conclusion is hypothesized in the first chapter, by strategic-studies expert Pauletta Otis.

Editors Robert Seiple and Dennis Hoover have assembled a dynamic and diverse array of scholars, practitioners, and experts from many fields and political walks of life. Seiple, former U.S. ambassador at large for International Religious Freedom, and Hoover both belong to the Institute for Global Engagement, the "think tank with legs." They have divided the book into four sections, examining religion's relationship to violence and insecurity, pluralism

and political stability, military intervention and conflict resolution, and human freedoms and civil society. Collectively, the book's fourteen chapters convey the point that theology, scripture, ethics, and religious studies contribute essential resources to global stability and a mature understanding of international affairs. Several overarching themes hold the book together; only a few underrunning concerns common to edited volumes impede its steep ambitions.

Foremost, the contributors caution readers about the inadequacies of traditional realist paradigms. An overdetermined realpolitik not only obstructs religious concerns from political view but depletes the ethical resources that often flow from religious ideas. See especially chapters by Robert Seiple and ethicist Jean Bethke Elshtain, who draw respectively from scripture and the just-war tradition to argue forcefully for responsible civic engagement on behalf of victims of atrocities. Several essays point up that it is hardly "realistic" to ignore so potent a force of human identity and motivation as religion. Kevin Hasson's political-philosophical analysis powerfully drills home the notion that any sustainable political structure or system must presuppose a "moral anthropology" or account of human nature in which the "built-in thirst for the transcendent" can flourish and be protected. Historian Philip Jenkins's essay also argues for protecting religious freedom: societies that repress or eliminate religious opposition often embolden those they persecute, driving them underground, militarizing them, sacralizing their persecution, and creating long-term animosities and insecurity. Where Jenkins offers a wide range of examples, an illuminating chapter by Chris Seiple and Joshua White casts a focused look at Uzbekistan, a latent hotspot below many people's security radar screens. Together, these authors showcase a central motif: when religious freedom is jeopardized for some, political stability is imperiled for many—a worry that should consume any self-styled realist. Reciprocally, as chapters by Christopher Hall, Osman bin Bakar, and others reveal, when religious pluralism and tolerance are nurtured, political security is made more certain.

A shared vision in this volume is the need for a more comprehensive political outlook than political realism customarily affords. Various authors issue calls for a more "holistic," inclusive, and robust political ethic that extends beyond a cramped view of states and their rulers and interests by engaging citizens, civic groups, and those who struggle—often in the shadows, sometimes through force—for a place in the political daylight. Given the era of globalization in which we dwell, an approach more attuned to dispersed power structures is more realistic than certain traditional forms that "hard" geopolitics offer. Thus does Harold Saunders (a twenty-year veteran of the National Security Council) appeal for an alternative paradigm of "relational realism," one that takes stock of the "full complex of human interactions that contribute to (or subvert) security." Thus does Hall argue for the cultivation of "religious diplomacy" and "diplomatic virtues," echoing Douglas Johnston, whose foreword proposes the creation of religious attachés in the U.S. Foreign Service. (The U.S. military should follow suit.) Thus does Elshtain elevate low realist expectations with a tenable model of citizenship she labels

"justice as equal regard"—the equal right of besieged victims to have force used on their behalf.

Those of us who serve or have served in the military often draw our battle lines starkly: black and white, good and evil, us and them. This crucial book offers a chastening reminder not only of the many shades of gray needed to nuance a view of religion as it relates to global security in a confusing new age but also of the richly colorful tapestry woven by religious ideas and approaches to political problems. If that doesn't persuade, then simply recall the book's thesis: nations that respect religion's role in the world are far more secure than those that do not.

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Sawyer, Ralph D. *The Tao of Spycraft: Intelligence Theory and Practice in Traditional China.* Boulder, Colo.: Westview, 2004. 617pp.

Ralph Sawyer continues his work on Chinese political and military writings with *The Tao of Spycraft*. The title, however, may be somewhat misleading. Rather than compartmentalizing intelligence separate from other endeavors, Sawyer demonstrates how intelligence is an integral aspect of war, diplomacy, and politics.

A sampling of current war college articles shows a strong interest in "integrating all elements of national power," for which the Defense Department uses the acronym DIME (diplomatic, informational, military, and economic). Sawyer demonstrates that this was a common concept thousands of years ago in China. Diplomatic maneuvers, economic inducements, propaganda, and whispering campaigns were all an essential element of statecraft. Most important, unlike our contemporary U.S. attitudes, intelligence was not isolated as some kind of supporting activity or a commodity accessed when needed but an integral part of all state activities.

The book is divided into six parts: Early History, Spycraft, Covert Activities, Theories of Evaluating and Intelligence, Military Intelligence, and Prognostication, Divination, and Nonhuman Factors. Each part contains several topical chapters, each rich with examples from Chinese history. For example, part 4 (Theories of Evaluating and Intelligence), chapter 10 ("Basic Theory and Issues") provides a primer on critical thinking and evaluation as good as any contemporary U.S. intelligence text. It addresses analytic biases and prejudices, how to judge the reliability and credibility of sources, how to make assessments on limited information, and confidence levels of assessments—all issues the intelligence community must continually address.

Several common concepts run the length of the book. The first is the integration of intelligence into statecraft. Another is the view that intelligence is essentially a human endeavor. The statesman, the general, and the spymaster must understand both human nature in general and the personalities of their colleagues, allies, and enemies in particular.

This work is not without flaws. It cries out for maps, especially political maps of the "Spring and Autumn" and "Warring States" periods. The book assumes that the reader has a basic understanding of traditional Chinese history and

culture; some sections may be hard going for the casual reader. Parts of the book are rather dry; this reflects the extensive translations more than the author's style. But for serious students of China, intelligence tradecraft, or information operations, this book provides essential understanding of contemporary Chinese statecraft.

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Graham, Euan. *Japan's Sea Lane Security, 1940–2004: A Matter of Life and Death?* New York: Routledge, 2006. 320pp. $115

As the first English-language analysis of its kind, Graham's comprehensive case study fills a critical gap in the literature concerning the maritime dimension of Japanese national security. This is an exciting issue at a dynamic time: in October 2004, Japan's Maritime Self-Defense Force (MSDF) and coast guard led Northeast Asia's first Proliferation Security Initiative exercise. In the Indian Ocean, the MSDF is currently fuelling allied vessels to support operations in Afghanistan. Meanwhile, Japan is struggling to assert control over its exclusive economic zones, the boundaries of which are increasingly contested by China and South Korea.

Graham (currently a British government researcher at the Foreign and Commonwealth Office's North Asia and Pacific Research Group) draws on fresh, original sources, including Japanese-language documents and interviews with Japanese officials, to demonstrate that while Japan's defense and foreign policy have changed dramatically since its opening up to the world in 1853, sea-lane security has been an enduring national security concern. Graham offers insight into Japanese leaders' and analysts' perceptions of their nation's own security context, thereby avoiding the tendency of much related scholarship to view matters exclusively through the prism of relations with the United States.

Graham situates resource-poor Japan in its geographic context: "Although at nearly 30,000 km, Japan's coastline is one-third longer than that of the United States, no inland point is more than 150 km from the sea." He explains Japan's historical concern with the security of its sea lines of communication (SLOC), citing official Diet testimony that "the greatest cause of [Japan's World War II] defeat was the loss of shipping" to the Allied blockade. Graham records a recent manifestation of Japanese SLOC concerns: Prime Minister (1996–98) Ryutaro Hashimoto's worry that "many commercial flights and aircraft [were] forced to divert around those areas affected" by China's March 1996 missile tests, during which "some of the missiles landed in waters only 60 km from [Japan's] Yonaguni island." Graham's analysis is well written, organized, and documented; based on numerous, very current data; and highly accessible to the reader. It is thus an essential reference for analysts of East Asian security.

Given this significant achievement, one hopes that Graham and other scholars will conduct follow-up research concerning such areas relevant to Japan's future SLOC security as China's maritime legal and naval development. Some assessments may need to be revisited as additional data becomes available. For

instance, while Graham suggests that China's Song diesel submarine program may have "fail[ed] . . . to develop according to schedule," it is now noteworthy the extent to which Song development appears to have progressed in parallel to China's importing of Kilo diesel submarines from Russia.

Graham projects that SLOC security will continue to preoccupy Japanese planners as a fundamental national concern. He breaks significant ground by showing that Japanese policy makers, motivated by increasingly "realist" threat perceptions, are exploring new directions in the pursuit of SLOC security. The extent to which these emerging impulses can transcend funding constraints (imposed increasingly by demographic and economic challenges) and constitutional limitations (still protected, to some degree, by domestic politics) remains a pivotal question for all concerned with East Asian security.

ANDREW S. ERICKSON
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Johnson, Stephen P. *Silent Steel: The Mysterious Death of the Nuclear Sub USS* Scorpion. Hoboken, N.J.: Wiley, 2006. 292pp. $25.95

Several years ago I received a phone call from Stephen Johnson asking about my service on the USS *Scorpion* (SSN 589), my first ship, between the fall of 1961 and the winter of 1962. He explained he was writing a book about its loss in late May 1968 with its entire crew of ninety-nine. I spoke with him at some length and sent some material about the vast "SubSafe" program changes that occurred within the Submarine Force after the loss of USS *Thresher* (SSN 593) in April 1963. *Silent Steel* is the exquisitely researched result of my tiny input and that of more than 230 others—ranging from the widows of *Scorpion* sailors, submarine design engineers and naval architects, and a list of active-duty and retired personnel that reads like a "who's who" of the then and now Submarine Force. The bibliography itself spans two dozen pages of applicable books, journal articles, official reports, memorandums, and other miscellaneous correspondence.

Anyone expecting to find a clear and unambiguous set of events and circumstances that "explain" the *Scorpion*'s loss will be disappointed. Rather, along with fascinating personal insights into some key players, the reader will find erudite and technically credible discussions on the facts and assumptions of any number of popular and not so popular theories. For example, his dispassionate and objective examination of much of the same material that was available to formal Navy courts of inquiry virtually rules out any concept of "hostile action" and substantially weakens the plausibility of incidents involving the ship's own torpedoes. He subtly chides some advocates for having drawn three-significant-figure conclusions from one-significant-figure assumptions. In addition, by bluntly describing some bureaucratic foibles and tragic administrative decisions (such as shortchanging *Scorpion*'s SubSafe package during a 1967 refueling overhaul to save money), Johnson's work leads one to perceive that—as is true in virtually all submarine disasters *that we know something about*—there had to have been some series of complicating, cascading events that overwhelmed any efforts by the crew to bring

the (perhaps minor) initiating casualty under control. For those who delight in finding small technical mistakes, there are a few, if one looks closely enough—for example, the *Scorpion*'s fire control system was not a Mark 113 but a vintage Mark 101. But none detracts from the overall high quality of the investigative effort.

Even without a specific "cause célèbre" event to dissect and review for "lessons learned," *Silent Steel* provides much to think about for anyone interested in or involved with combating casualties at sea. There is even some consolation, however small in comparison to the loss of life, in the knowledge that the United States has come to realize to a significant degree in the years since that "material readiness is a consumable"; we are reluctant to run ships (and people) as hard as we did in the early to mid-1960s. When I rode *Scorpion,* it averaged more than three hundred days a year at sea. Today, even with dwindling platform resources, the Submarine Force has begun to say no to many of the increasing operational requirements from senior regional and national commanders.

JAMES H. PATTON, JR.
Captain, U.S. Navy (Ret.)

Keefer, Edward C., ed. *Foreign Relations of the U.S.: Vietnam, January 1969–July 1970,* vol. 6. Washington, D.C.: U.S. Government Printing Office, 2006. 1,173pp. $65

This State Department volume, the first of five that will cover the end period of the Vietnam War, documents major foreign policy issues of the Nixon administration, with a focus on U.S. policy toward Vietnam, Cambodia, and to a lesser extent Laos during the period of January 1969 to July 1970. What a time it was!

In the 1968 presidential campaign, candidate Richard M. Nixon stated that he had a plan to end the war in Vietnam. As it turned out, the "plan" was embryonic. When he took office he moved slowly, convinced that how the United States ended the war would have an enduring impact on future American foreign policy. Henry Kissinger, Nixon's national security adviser, became the key figure in the effort to end the war, a program that became known as "Vietnamization."

Vietnamization was directed toward the upgrading of South Vietnamese forces, which was to be accompanied by phased withdrawals of U.S. forces. Completion would depend on how things went in Vietnam. This work, in addition to documenting policy efforts to move this program along, also documents efforts to convince Hanoi that it was dealing with a strong adversary: for example, secret U.S. bombing of Cambodia, integration of the secret war in Laos with the conflict in Vietnam, and covert operations against North Vietnam.

One of the principal themes developed here is the search for a negotiated settlement, first in the Paris Peace Talks and then through secret meetings between Kissinger and North Vietnamese foreign minister Xuan Thuy and special adviser Le Duc Tho. Here, and throughout the book, Kissinger's memorandums to Nixon are the key documents. Many appear in Kissinger's memoirs; however, in this work they are more complete.

In March 1970, Cambodia's Norodom Sihanouk was overthrown by the Lon

Nol government. For years enemy sanctuaries and supply caches on the border area of that country had been a problem for Americans and South Vietnamese. Now there was a government in Phnom Penh that would permit something to be done about it. By April, the Army of the Republic of Vietnam forces were mounting operations in the former sanctuaries.

Soon the notion of American forces participating in cross-border operations was considered. The last third of this book is dedicated to the Cambodian incursion, and here Keefer's editorial notes and footnotes are particularly valuable. Some touch upon the U.S. domestic situation that developed in that unforgettable spring of 1970: "On May 4, 1970 at approximately 4:45 p.m., the President told Kissinger, 'At Kent State there were 4 or 5 killed today. But that place has been bad for quite some time.'" The footnote goes on to develop related conversations through May 7.

This volume is an essential source for anyone researching the period, in particular American foreign and military policy toward Southeast Asia. Edward Keefer has done an outstanding job in bringing together and giving focus to this vital aspect of American foreign policy during the early Nixon administration.

DOUGLAS KINNARD
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Professor Emeritus, University of Vermont

Anderson, Fred. *The War That Made America: A Short History of the French and Indian War.* New York: Viking, 2005. 293pp. $25.95

"It is the nature of great events to obscure the great events that came before them." This memorable phrasing begins nineteenth-century historian Francis Parkman's masterwork on the French and Indian War, *Montcalm and Wolfe.* One hundred twenty years later, Fred Anderson's *The War That Made America* clears away with lucid prose and effective narrative style the obscurity that has veiled the French and Indian War. Described as the "first world war" by Winston Churchill, it was the fourth in a series of six wars fought between England and France and their various allies between 1689 and 1815. It enflamed French Canada and British North America from the Carolinas to Nova Scotia, and it spread to Europe, the Caribbean, West Africa, India, and eventually to the Philippines. Despite this nearly worldwide conflagration and the approximately 800,000 total military casualties that occurred in all theaters, this conflict (also commonly known as the Seven Years' War) is no more familiar to most Americans than the Peloponnesian War, according to Anderson. His highly readable and concise history, primarily focused on the fierce struggle from 1754 to 1760 between the British, the French, and numerous American Indian nations for control of North America, elegantly remedies this lack of familiarity.

Anderson, a history professor at the University of Colorado and a former Army infantry officer, is the author of *Crucible of War: The Seven Years' War and the Fate of Empire in British North America, 1754–1766,* winner of the Francis Parkman and Mark Lynton history prizes in 2001. *The War That Made America* is a scaled-down telling of that prize-winning epic; it is also a

companion to a four-hour PBS television series of the same name. There is plenty of history to write about in this war and in the momentous clash of empires, usually viewed by Americans as only hazy background to the American Revolution. Throughout the first half of the eighteenth century, the distribution of power in the northern colonies had been kept in balance by the powerful Iroquois Confederacy, which skillfully played the French against the British in order to survive and thrive. But by midcentury, colonial expansion and land speculation, plus the Iroquois' own miscalculations, had led to conflict. The initial confrontation was sparked in a remote Allegheny glen by a young George Washington, whose small militia and Indian scouting party had a brief firefight with a French reconnaissance force. From this spark events were set in train that would see early French successes but eventually lead to a "most unequivocal" Anglo-American victory (in large part enabled by the Royal Navy), one that would destroy the American empire of France and place the British crown at its zenith after the Treaty of Paris was ratified in 1763.

Anderson, now perhaps the preeminent historian of the French and Indian War, relates this complex history in an insightful and succinct account. From the gilded halls of power—Whitehall and Versailles—to the remote banks of the Monongahela in the Ohio Valley, the story and its principal participants are clearly described. The key roles of Indian leaders, such as the Delaware chief Teedyuscung, the Seneca chief Tanaghrisson (the "Half King"), and later the Ottawa war chief Pontiac, and their political and war-fighting skills are made unmistakably apparent. Numerous French and English military leaders, including the Marquis de Montcalm and Brigadier General James Wolfe, struck down within minutes of each other on the Plains of Abraham in front of Quebec, are also effectively portrayed. But Anderson's story is more than a chronological history, along with its significant characters; it is also the tale of cultural and intercultural interaction, with Indians and their different tribal interests an integral part of it.

In the end, the war overturned the balance of power on two continents, essentially subjugated the Native American nations and destroyed their control of their own destinies and lands, and lit the "long fuse" of the American Revolution. Professor Anderson's skillful account of this rich history is a cautionary story, pointing out the unpredictability and irony that attend war and the pursuit of power, and how "even the most complete victories can sow the seeds of reversal and defeat for victors too dazzled by success to remember that they are, in fact, only human." This excellent primer by a distinguished historian makes a most convincing case that the French and Indian War transformed the colonists' world forever, that "it is not too much to call it the war that made America."

WILLIAM CALHOUN
Naval War College

IN THE JOURNALS

Adm. Robert J. Natter, U.S. Navy (Ret.) and Adm. Donald Pilling, U.S. Navy (Ret.), "Achieving the Right Mix," U.S. Naval Institute *Proceedings* (October 2006), pp. 14–16. Cogent advocacy for modernizing Navy Aegis surface combatants through a Surface Life Extension Program as part of a hedging strategy against constrained budgets for future ship construction.

Christopher J. Lamb and Irving Lachow, "Reforming Pentagon Decisionmaking," *Joint Force Quarterly* (4th Quarter 2006), pp. 68–71. A radical proposal for improved decision-support mechanisms for senior Department of Defense officials, in the wake of a recommendation of the recent Quadrennial Defense Review.

Ethan B. Kapstein, "The New Global Slave Trade," *Foreign Affairs* (November/December 2006), pp. 103–15. An eye-opening analysis of a neglected problem, with important implications for the U.S. Navy and global maritime cooperation.

David Rose, "Neo Culpa: Please Don't Call Them 'Architects of the War,'" *Vanity Fair* (January 2007). Leading neoconservatives speak out on the Iraq War.

OF SPECIAL INTEREST

"ARMED GROUPS" WORKSHOP

The Consortium for the Study of Intelligence, a project of the National Strategy Information Center (NSIC), has developed a syllabus, intended for defense and intelligence professionals, that examines the complex nature of armed groups, assessing the challenges they now pose to U.S. security and exploring approaches for meeting them. From Monday through Friday, 16–20 July 2007, the consortium will sponsor a workshop for twenty-five faculty members from military and intelligence schools. The workshop will be held at the Kent Manor Inn, near Annapolis on the Chesapeake Bay. The workshop will introduce the subject matter of the course and ways to teach it. The program, which combines presentations, discussions, and practical exercises, will be directed by Dr. Roy Godson, professor of government at Georgetown University and president of NSIC, and Dr. Richard Shultz, professor and director of international security studies at the Fletcher School of Tufts University and director of research at the Consortium for the Study of Intelligence. The workshop will be open to faculty members from U.S. defense and intelligence schools who teach in the areas of international relations, foreign policy, intelligence, and security studies and who are interested in learning how to teach a course (or part of one) on armed groups. To apply please e-mail the consortium at info@intelligenceconsortium.org, attaching a letter about your professional background and interests, a CV, and a request for an application. The consortium will cover the cost of accommodations (room and board) at Kent Manor Inn; participants will be responsible for their travel expenses. For information, e-mail rgodson@strategycenter.org.

THE NAVAL HISTORICAL CENTER, WASHINGTON, D.C.

The Director of Naval History has awarded to Lt. Joseph P. Slaughter II, USN, the $5,000 Rear Admiral Samuel Eliot Morison Scholarship, which is open to serving officers of the Navy and Marine Corps who are pursuing a graduate degree in history or a related field; to Jakub J. Grygiel, the 2005 Rear Admiral Ernest M. Eller Prize in Naval History; and to Christopher A. Ford and David A. Rosenberg, honorable mention in the same competition. For information and application forms relating to these award programs, consult the Naval Historical

Center's website, www.history.navy.mil, or contact Dr. Edward J. Marolda, Senior Historian, at (202) 433-3940.

New and forthcoming publications from NHC include Edward J. Marolda, ed., *The U.S. Navy and the Korean War* (Naval Institute Press, Spring 2007); Robert J. Schneller, Jr., *Anchor of Resolve: A Short History of U.S. Naval Forces Central Command/Fifth Fleet* (Naval Historical Center, Spring 2007); John Darrell Sherwood, *Black Sailor, White Navy: Racial Unrest in the U.S. Navy during the Vietnam War Era* (New York: New York University Press, 2007); Charles E. Brodine, Jr., Michael J. Crawford, and Christine F. Hughes, eds., *Interpreting Old Ironsides: Handbook of USS* Constitution (Naval Historical Center, Spring 2007); and an online version of Edward W. Callahan, ed., *List of Officers of the Navy of the United States and of the Marine Corps from 1775 to 1900,* prepared by Christine F. Hughes and other members of the Early History Branch, Naval Historical Center, available at www.history.navy.mil/books/callahan/index.htm.

The center planned a series of seminars for 2007: "Capturing Jonathan Pollard," by Ronald J. Olive, Tuesday, 23 January 2007; "African American Naval Officers in the Wake of a Revolution," by Captain Jeffrey K. Sapp, USN, Tuesday, 20 February 2007; "Navy and Marine Corps Women at War," by James E. Wise, Jr., USN (Ret.), Tuesday, 20 March 2007; "Reinvigorating NATO's Naval Strategy: Challenge and Response of the 1960s," by Robert Davis, Tuesday, 17 April 2007; and "Amirs, Admirals, and Desert Sailors," by Dr. David F. Winkler, Tuesday, 15 May 2007; "The Long Ride of the Surface Warrior, 1942–1944," by James Hornfischer, Tuesday, 19 June 2007. All will be held from 12:00 to 1:00 PM in the National Museum of the United States Navy, Building 76, Washington Navy Yard, Washington, D.C. For additional information contact the Senior Historian, Naval Historical Center, Dr. Edward J. Marolda, at (202) 433-3940 or edward.marolda@navy.mil.